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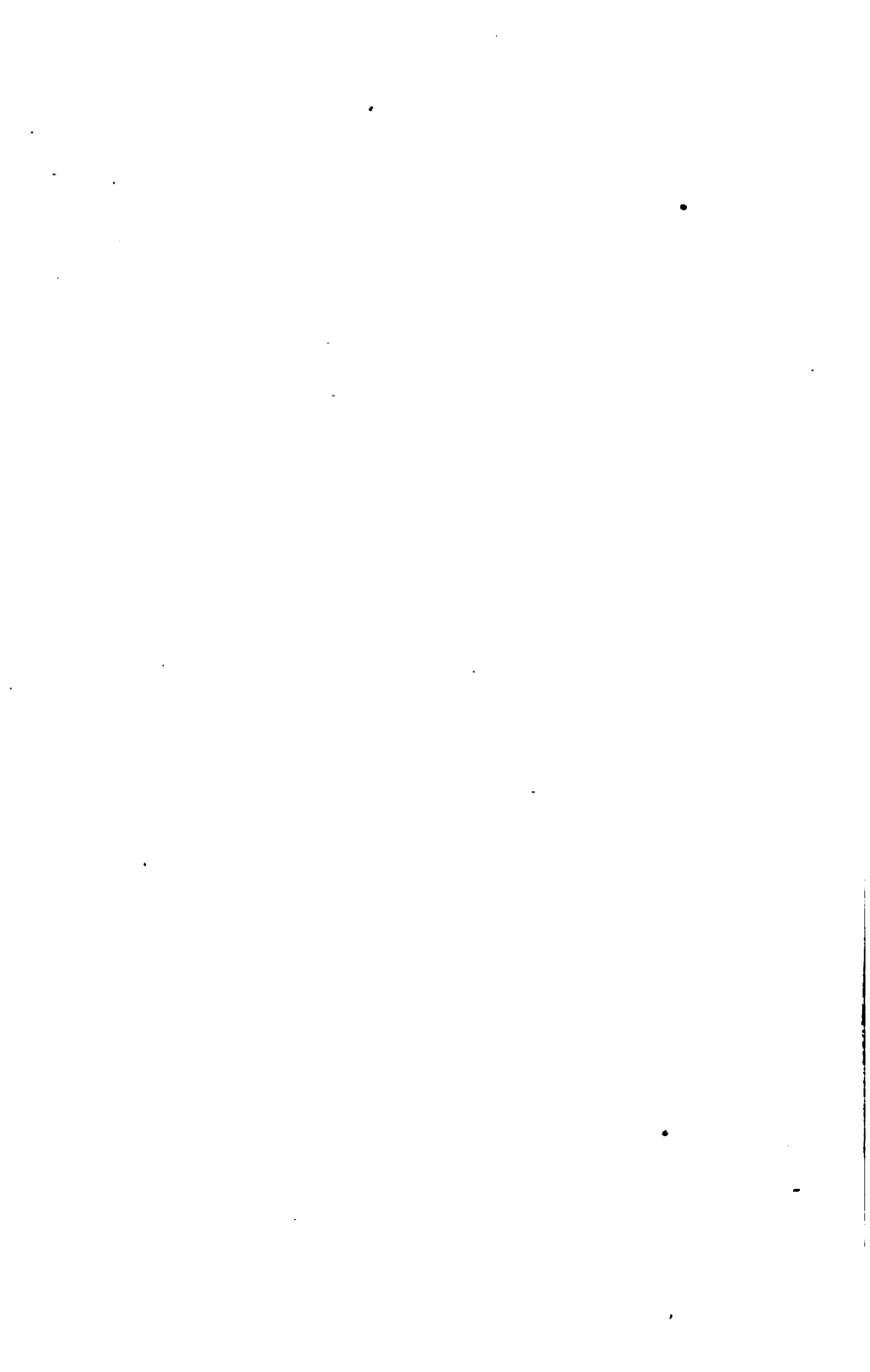
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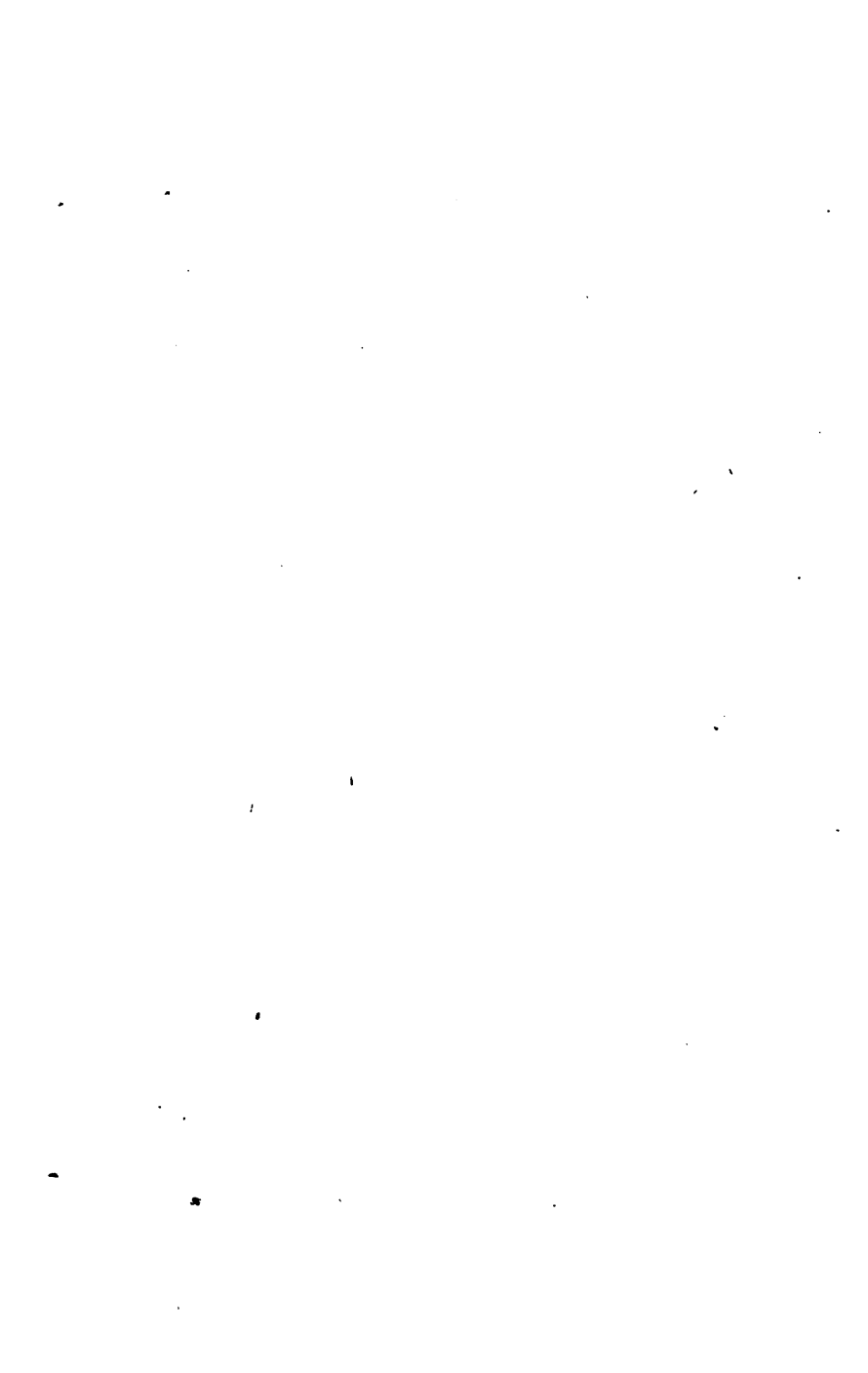
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Received Oct. 16, 1893.









ASTRONOMICAL SERMONS

IN TWO PARTS.

BY H. S. PORTER, D. D.

"One generation shall praise Thy works to another."

"PRAISE ye Him, Sun and Moon, praise Him all ye Stars of light."

LOUISVILLE:
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ASTRONOMICAL SERMONS.

**"A LITTLE Philosophy inclineth man's mind to Atheism, but depth in
Philosophy bringeth mind about to Religion."** **LORD BACON.**

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**"FINDS tongues in trees, books in the running brooks,
Sermons in stones, and good in every thing."**

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P R E F A C E.

IN presenting this volume of Discourses to the public, it is not supposed that all would be pleased with it. No such vain expectations have been entertained. Indeed, it has not been the object to so shape and trim it as to make it a candidate for universal favor. There is too great a medley of taste, feeling, sentiment, and opinion in this world for any one human production to be congenial to all. These Discourses, now presented to the public through the press, were prepared, not to suit the multiform taste of the public so much as to embody sentiments and views in accordance with the nature of true science and the authorized teaching of our holy religion; and to such as are thoroughly acquainted with the principles of the one and the object of the other, are they respectfully addressed. Whether or not they are worthy of their aim, will be left for the decision of those for whom they were intended. When delivered orally from different pulpits, they certainly met with as much favor as could have been desired. The lecture form, to some extent, has been retained, believing it would be the more appropriate. The volume has been prepared at intervals of time redeemed from pressing pastoral and other duties. This has rendered the task more arduous and difficult. The aid of friends in important respects should be acknowledged.

MEMPHIS, TENN., May, 1854.



ASTRONOMICAL SERMONS.

PART I.

"THAT I may publish with the voice of thanksgiving, and tell of all Thy wondrous works."

ESSAY.

ASTRONOMICAL SCIENCE CONSIDERED IN RELATION TO THE EXISTENCE AND CHARACTER OF DEITY.

"How charming is divine philosophy!
Not harsh and crabbed, as dull fools suppose,
But musical as is Apollo's lute;
And a perpetual feast of nectared sweets,
Where no crude surfeit reigns."

"And wisdom and knowledge shall be the stability of thy times."

WITH an eye illumined with a radiance from the throne of God, the captive prophet, looking forward to the glorious era of the gospel, exclaims with a sacred rapture, "many shall run to and fro, and knowledge shall be increased." History shows, that in Christian countries knowledge has to a far greater extent than in other countries, been accumulated. In recent times, the light of revelation, shining brighter and brighter, there has been an astonishing progress in all useful and practical learning. Scientific discoveries and the origination of new truths have followed each other in rapid succession; with these, the increase of agencies for the diffusion of knowledge has kept pace. The result has been, that all the departments

of human society have shared liberally in the beneficial results. Evils have been averted, the blessings of life multiplied, the arts of peace and civilization have been cultivated, and man has been elevated in the scale of social and moral life. We have seen commerce and agriculture, in our own day, making rapid strides towards perfection, and at every stage of advancement scattering blessings with bountiful hands. The cause of religion has by this general increase of knowledge, foretold by the sacred prophets, been greatly blessed. Christianity has been the cause, by stimulating to inquiry and by giving a correct direction to investigation, of this augmentation of knowledge. But the effect has reacted upon the cause with splendid results; the cause thus reacted upon has acquired renewed vigor and produced new and astonishing results. This acting and re-acting of cause on effect and effect on cause will continue in time to come. The history of the Reformation furnishes both proof and illustration of the fact, that the prevalence of the principles of Christianity has a happy tendency to advance and increase all practical and useful knowledge. History, both profane and ecclesiastical, since that period, shows that knowledge has a great influence on the purity and extension of true religion. The truth of this latter remark will be manifest from a variety of considerations. The art of printing and the increase of books must exert a decided influence. New and speedy modes of locomotion furnish advantages for bringing the gospel in contact with many minds, which otherwise, would be out of its reach. As learning advances, the minds of the benighted are prepared for the reception of the sublime truths of revelation. As the circle of human knowledge expands and grows brighter, the evidences of the divine

authenticity of the Christian scriptures become more and more satisfactory. Human learning, to the gospel, is as John the Baptist, the forerunner and harbinger of Christ, making rough ways smooth, crooked ways straight, exalting the valleys, and leveling the hills.

The Christian religion, in the opinion of all, is to be regarded as a science—a sublime and holy science. As such, it is progressive in its nature; as much so as mathematical science, or as astronomy. We must, however, be careful, lest we mistake the nature of this progress. Revelation came from heaven perfect, complete in all respects, and without the shadow of deficiency. The progress alluded to, has respect to two things—the one, the progressive development of the human intellect, the other, the nature of human society, to afford opportunity to the principles of the gospel to expand and develop themselves. Individual intellect, from extreme infancy to mature manhood, makes astonishing progress in the acquisition of knowledge, and in growth in all its faculties. Human intellect in the aggregate, embracing the entire race, is capable of equal growth and advancement. Sciences and topics that cannot be comprehended at the age of ten, may at the age of thirty be easily understood and mastered. In the days of Abraham, or Socrates, or Seneca, there were many subjects totally beyond the reach of human intellect, which now are readily comprehended. Many objects now considered entirely beyond the reach of human investigation, will, in future, no doubt, be easily and fully embraced by intellects surrounded by appliances and facilities different from those which now exist. There are topics in connection with revelation, which in the days of Moses were incomprehensible, that in the time of Christ were fully understood. Parts of

the scriptures which were wholly enigmatical to the disciples before the resurrection of their Master, were, after that event, clear and easily comprehended. Many topics in the sacred volume which lay beyond the intellect of Chrysostom or Ambrose, are satisfactorily explained by Mac-knight and Henry. The circle of human knowledge is constantly enlarging, and as it enlarges, more and more of revelation is understood. This is as though a man were suddenly placed in a new region of country during the darkness of night : when the light of day would begin to dawn, first, the rude outline of objects would indistinctly appear, then others would be discovered, and, as light would grow brighter, each object would be more distinctly seen, and the reach of vision would be extended, until the full light of day would blaze all around ; and then a new, extended, and varied scene would, distinctly and clearly visible, be, in all its charms and novelty, before the eye.

The nature of human society exerts an influence on the development of the principles of the gospel. The seed of the plant will remain in the earth under the ice, frost, and snow of winter without being affected ; but on the approach of spring, under the warmth of a returning sun, those seeds will vegetate and spring up into living plants. There are many of the principles of the gospel which will only develop themselves under certain conditions of society. Some are suited to a primitive, others to a more advanced, and yet others to a more perfected state of society. This being true, from the very nature of society religion will be seen to be progressive. The preaching of Christ differed from the preaching of Moses. The Hebrew lawgiver preached obedience and temporal blessings. The Saviour of the world preached, in addition to what Moses had published,

the immortality of the soul, the felicity of the righteous in the life to come, and the misery of the wicked under the displeasure of an offended God. Varying conditions of society, and different stages in intellectual culture, require a correspondence in the mode of presenting the truths of the gospel to the human mind. Things new and old are to be brought out of the gospel treasury.

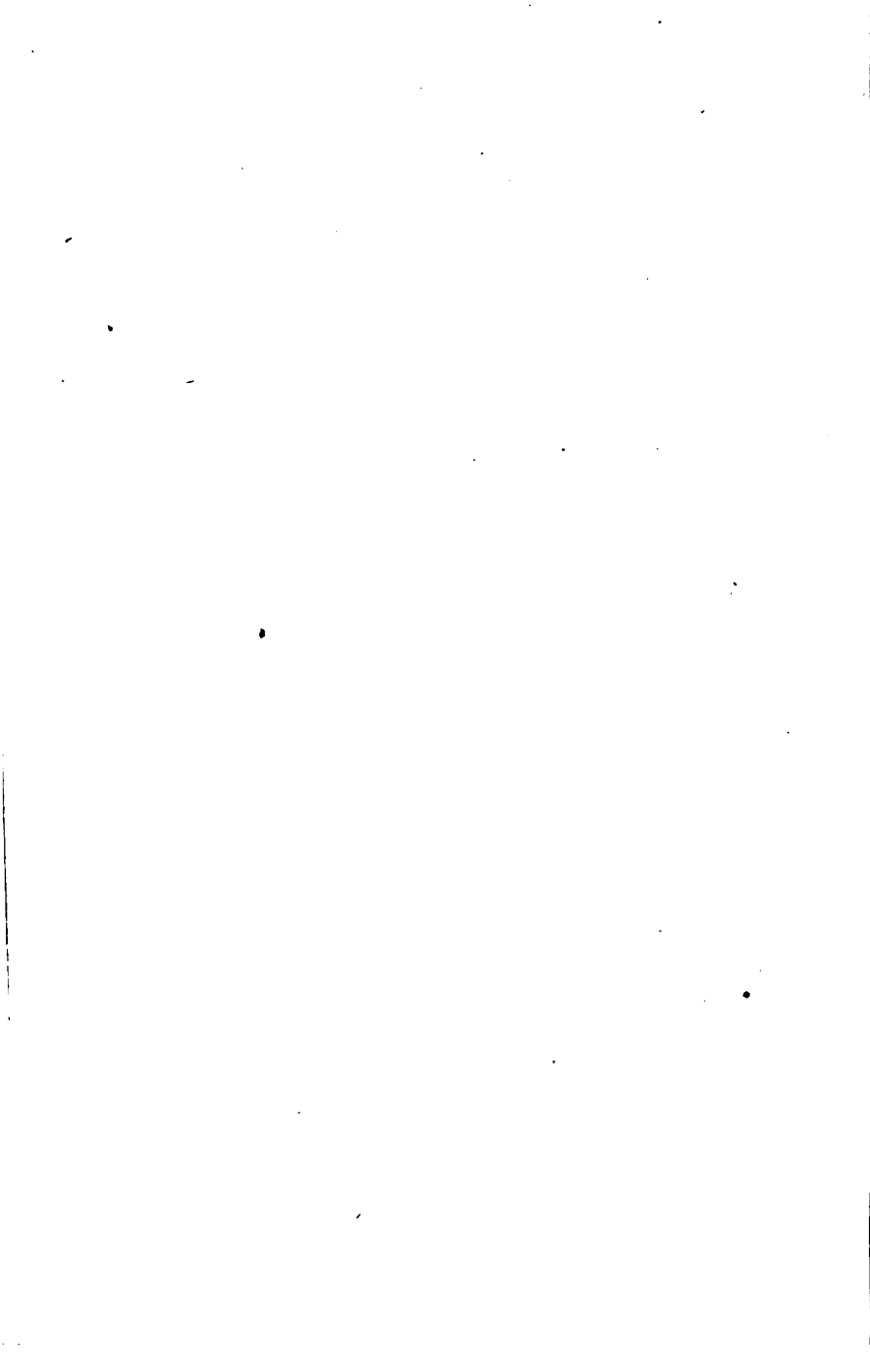
Natural theology, in recent times has received much attention from the pious and the learned. From the time of Paley until the present hour, some of the most eminent writers in the English language have given their attention to this department of religion. The Bridgewater Treatises have been of inestimable advantage. Natural theology is not only a science of a nature to enlist the attention of great and cultivated intellects, but is intimately connected with revealed religion. It may be regarded as the groundwork and foundation of that religion revealed in the sacred volume. The divine Being has revealed himself to us in the works of creation, as well as in the sacred scriptures,—of course, the revelation in the sacred volume is fuller and more complete than the one made through created objects. There is no discrepancy between them. They are parts of the same great plan. We may expect a strong analogy to subsist between them. Such is really the case. Natural theology is not, as has been contended by some, a fixed and stationary science, making no progress, except it be the progress of the children of Israel in the Wilderness, where there was forty years of constant movement but no advancement. The rapid and brilliant progress made in the physical sciences has thrown light on natural theology. The enlargement of the circle of knowledge in the physical sciences has extended the limits of natural theology; as the

circle of light of the former has grown brighter under successive discoveries and investigations, the limits of the latter have not only become more and more extended, but have been more accurately defined. Every fresh discovery made by the telescope, every new field opened to the view of the microscope, extending in opposite directions—the one reaching toward the infinitely great, the other toward the infinitely minute—have enlarged the range of natural theology. In such an enlargement, embracing so much of wonder and variety, there must of necessity be progress. The human intellect that now looks upon the physical universe and beholds it governed by laws subject to mutations unknown to former times, cannot fail to see in it marks and indications of the wisdom, power, and goodness of God hitherto not observed. The universe now sustains the same relation to its Creator that it did two thousand years ago; but it sustains a very different relation to human knowledge. It is in this relation to the human understanding which the created universe sustains, that the progress and advancement of natural theology has a foundation. Revealed religion, as it is more fully understood, throws brighter light on natural theology; and, in turn, the latter, as it advances, at every successive stage reflects a brighter light on the former. Thus may be fulfilled that sublime prophecy: “Moreover, the light of the moon shall be as the light of the sun, and the light of the sun shall be sevenfold.”

The Mosaic dispensation abounding in types, shadows, symbols, and sensible objects, sustained a most important relation to the Christian dispensation, which is simple, pure, and spiritual. The latter dispensation is incomplete without the former. The two are inseparably united. The

Christian dispensation is, or may be regarded, as the Jewish dispensation spiritualized. A similar relationship to this subsists between natural theology and revealed religion. The one would be incomplete without the other. Natural theology without revealed religion would be a dim, inconstant, flickering light—it would be as an optical illusion, or as a meteor's glare, or as the deceptive *ignes fatui*, or as the taunting mirage of the desert. Revealed religion, apart from the displays of the wisdom, power, and goodness of the Creator, seen in the works of creation, would not in all respects be full and complete. In the sacred volume we are often referred to the objects of creation that we may receive lessons of instruction from them.

The works of creation may be regarded as a great book spread out before us splendidly illuminated, introductory and prefatory to the greater and more sublime volume of inspiration.



SERMONS.

S E R M O N I.

EXISTENCE OF DEITY.

"For the invisible things of him from the creation of the world are clearly seen, being understood by the things that are made, even his eternal power and Godhead; so that they are without excuse."—ROMANS I: 20.

A belief in the existence of God is a prime — a fundamental — article of our holy religion. It is the great central idea of Christianity. All traces of it being obliterated from the human mind, then we might expect in society to see confusion, and anarchy, and chaos, prevail.— Civil government without this belief would be a mere nullity: all oaths, both of testimony and office, have respect to the existence of a God. It is an important element in the happiness of every one. The thought of living in a fatherless world — none to uphold it, none to guide its destinies — is gloomy beyond description. The reflection that we are in a life, knowing nothing of its origin, its aims, and ultimate destiny; none to watch over us, no

providential care thrown around us, ignorant of the future, and without home or prospect of existence beyond the grave; fills the soul with a darkness more awful than the darkness of the grave. Cheerless, without hope, the sport of chance, the slave of incredulity, and filled with "horrible imaginings," is that soul, atheistical and unchristian, that rejects the belief of the existence of a God. That soul sits in darkness, but it sees no "light;" it sits in the region and shadow of death, but to it no "light springs up." The sacred writers speaking of the Divine Being, evidently take it for granted that the works of creation evince the fact of his existence. They frequently point to those splendid displays of his power as seen in the created physical universe, as visible and satisfactory evidence of the existence of an invisible God. Indeed, when they have occasion to describe the glorious perfections of the adorable Creator, they do so by pointing to the works of his hands, and the objects of his preserving and upholding care. Abstract arguments and metaphysical disquisitions are never resorted to by the pen of inspiration to prove the fact that there is a God, or to explain his attributes. A visible creation stands before us—the representation of an invisible Deity. The lowest and crudest forms of barbarism may, therefrom, glean some idea,

though in many cases it may be groveling and mean, of the Author and Creator of all things. The poet remarks,

“From the poor Indian, whose untutored mind
Sees God in clouds, or hears him in the wind —
Whose soul proud science never taught to stray
Far as the solar walk or milky-way —
Yet simple Nature to his hope has given
Behind the cloud-topp’d hills an humbler heaven.”

The Apostle, speaking of the condition of the Gentiles before the light of revelation shone upon them, says: “For the invisible things of him from the creation of the world are clearly seen, being understood by the things that are made, even his eternal power and Godhead; so that they are without excuse.”

As the existence of God is a fundamental article of religion—an important element in the happiness of every one, and the foundation of order and morality—I will, in this discourse, take the liberty of calling attention to such Astronomical Phenomena as, on due consideration, may serve to confirm and illustrate the truth of this important fact:—The existence of Deity viewed in relation to the science of Astronomy, according to the sanction of the Sacred Scriptures.

The physical sciences, questioned and cross-questioned, give in their depositions in favor of the

truth of the existence of Deity. All, in Botanical science, from the cedar of Lebanon to the hyssop that springeth from the wall, (whereof Solomon wrote nearly three thousand years ago,) from the palm of the tropics to the moss of the Arctic regions proclaim, in bloom, bud and fruit, that there is a God. Every change, every analysis, every compound, every change in chemical science, proclaims the same fact. In Geological science, from the primitive crystalline rocks, ranging upwards, through all the successive formations, to the Newer Pliocene series of the Tertiary formation, or the Drift and Boulder formation, fossil, mineral and strata, proclaim the wonderful operations, through long epochs of duration, of the hands of the Omnipotent One. In Physiology and Anatomy, blood vessel, respiration and digestion, nerve, bone and ligament, all declare that we are "wonderfully and fearfully made." Astronomy, treating of such a number, variety and magnitude of objects, is, by the general suffrage of the learned world, regarded as the most sublime of all the sciences. This science is a splendid illuminated commentary, adumbrating and shadowing forth the Immense, the Omnipotent, the All-wise, and the All-beneficent One. Waiving facts and phenomena, which might be drawn from the other physical sciences, it will be the aim in this discourse to levy contribu-

tions on Astronomy for proofs of the existence of Deity.

Owing to the fact that the moon occupies the same time in turning on its axes that it does in revolving around the earth, one side of it is always turned away from our planet. In directing attention to the history of Astronomy we are reminded of this: its early history is lost in the hopeless darkness of remote antiquity. In the first of a series of Astronomical Sermons, an allusion, at least, to the history of Astronomical Science, may, by the circumstances, be demanded. Job, the upright man of Uz, fifteen hundred years before Christ, six hundred years before Homer, who wrote the Iliad, and more than a thousand years before Herodotus, the father, or reputed father, of history, living in the sandy plains of Arabia; displayed a knowledge of Astronomy which astonishes all, and which ought to put many a Christian reader of his writings in the nineteenth century to the blush. He speaks of the "Pleiades," the "bands of Orion," "Mazaroth," "Arcturus," the "chambers of the south," and "the crooked serpent." The "Pleiades," or Seven Stars, now, as in the days of Job, are seen in the constellation of Taurus; the *bands* of Orion in the splendid constellation of Orion, under the popular name of the "Ell and Yard;" and Arcturus is now known by the name of the

"Great Bear;" the *sons* of Arcturus have reference to the three stars forming the tail of that constellation. Mazaroth means the Zodiac with its twelve signs; the chambers of the south, the stars of the Southern Hemisphere; the crooked serpent, the constellation of Draco, situated between the great and little bear. Draco has a tortuous figure, like a serpent—as may be seen by any one on a clear evening: Virgil calls it "the sinuous snake," and the "resplendent snake." Job speaks of objects connected with Astronomy as though they were familiar to all in his day and country; and how long prior to his time this knowledge prevailed in Arabia is unknown. Cotemporary with the Patriarch, and probably before, the Egyptian Astronomers from the tops of the Pyramids were making elaborate observations on the heavens, the heliacal rising of Sirius was connected with the overflowing of the Nile. The marking out of the Zodiac, one of the greatest triumphs of early Astronomy, was, probably, due to these "night-watchers." The Babylonians from the lofty height of the tower of Belus made important observations on the heavenly bodies. The Greeks, with an inquisitiveness and acuteness of mind peculiar to their nature, rendered important services to Astronomy. Thales, who was born at Miletus, was celebrated among the Grecian philosophers. So

was Aristarchus of Samos, who maintained that the earth turned upon its centre and described a circle yearly around the sun. And so was Pythagoras, who taught that in the middle of the universe was a central fire around which the earth revolved. Julius Cæsar among the Romans rendered some important services to practical Astronomy. The remark has been made and often quoted, that the un-devout Astronomer was mad. Hipparchus and Ptolemy in the days of the Antonines rendered this science some valuable service, especially the former. In the middle ages the Saracens, when not too much busied with the Koran and the sword, found time to devote attention to the science of Astronomy. The Aztecs of this continent about the same time, from the great Pyramid of Cholula and the lofty "Teocali," were making some important observations on the heavenly bodies. Astronomy for a long time has been laboriously and with much success, cultivated. "There exist in China, authentic catalogues of the remarkable meteors of all classes, aerolites included, which have appeared there during a period of twenty-four hundred years." Nicholas Copernicus, born 1472, at Thorn, in Prussia, adopted and improved the theory, or, strictly speaking, theories, of Aristarchus and Pythagoras, and taught the present theory of the Solar System. Kepler and Galileo demonstrated

this theory, and Newton explained it. The elder Herschel and Laplace extended almost to infinity Siderial Astronomy. In our own day rapid progress has been made in this science: every year fresh discoveries are being made. For the last ten or fifteen years commendable attention has been given to the study of Astronomy. Observatories are being erected all over the country.

There may be deduced from the fact of the existence of the heavenly bodies, or the bodies of space, an argument to prove that there is a God. These orbs have a real existence; a denial of this would evince insanity. Our home in space is on one of these spheres. The sun, moon, several planets of the solar system—such as Venus, Mars, Jupiter, and Saturn, many comets at stated times, and occasionally aerolites—are visible to the naked eye. The telescope reveals in the solar system planets, or huge worlds, not visible to the unassisted eye; a number of secondary planets, or moons, an almost countless host of comets, some eleven or twelve asteroids, and several rings connected with planets. To the naked eye, during the darkness of night, there appear two or three thousand stars; to the telescope eighty or one hundred millions appear in the great voids of space encompassing us on all sides around. It has been found that the stars that sur-

round us on all sides, have shape and form as a whole; and that out beyond the zone of stars in which the solar system is embraced, passing over almost illimitable voids of space, there appear to the telescopic vision of the Astronomer, white nebulous specks. A greater telescopic power turned on these resolve many of them into systems of stars, like that in which we are placed. No less than three thousand of these *nebulæ* have been counted, located in different parts of the voids of space. These orbs of space, whether visible to the naked eye or to the telescope, alike proclaim that there is a God. These orbs have not, according to the Epicurean philosophy, emerged into existence by chance. The theory of chance is not only contrary to all the processes with which the human intellect is familiar, but is repugnant to common sense. No occurrence, during the period of human observation, has ever taken place by chance. That there is a cause for every effect is one of the axioms of nature. Were all the letters of the Greek alphabet combined in Homer's *Iliad*, or the letters of the English alphabet found in the English version of the Bible, taken and thrown promiscuously together, and then from some eminence were they at one sweep cast over a surrounding plain, ten thousand such sweeps would not result in either an *Iliad* or a Bible. Until one could work himself up

to the point of credulity to believe this absurdity, it would be impossible to believe that the grand mechanism of the solar system, or the greater mechanism of our astral system, was the result of blind chance. The bodies of space are not eternal. Take the earth as a type of all of them. It is found to have a motion on its axis, a motion of revolution around the sun, a motion of translation accompanying the sun around some great unknown centre. Now, reason would tell us that the globe on which we live must have had an existence ere any one of its triple motions commenced. Hence its motion is not eternal. Geological science not only teaches that change is the great law governing the surface of the globe, but it carries us back far over remote epochs of the past, through a series of changes, many of them stupendous in their character. As each series of these changes had a beginning, so the first of the entire series had a beginning. Hence the earth is not eternal. We may safely conclude, then, that the bodies of space are not eternal. The orbs of space are not self-created, or self-originated. To attempt to refute this would be needless. No one believes it: a thinking mind is incapable of believing it. Absurdity, self-contradiction, and impossibilities are never believed by reasonable people. The conclusion to which the reflecting mind naturally comes, on beholding the

orbs of space, is, that they were created by a superior Intelligence: by that all-creating and all-governing Mind whose foot-prints are seen in every precinct and department of the created universe. The light that emanates from every star, however remote, twinkling, falls on the eye of the observer, distinctly “daguerreotyping” the existence of Deity on the mind. Vast creation, in all its extended and varied limits, constitutes a huge golden-leaved volume, resplendent and illuminated, on every page of which the existence and character of Deity are inscribed in letters of gems and diamonds. The Jewish High Priest wore on his breast-plate twelve precious stones, blazing and sparkling in their native lustre, surrounded by which radiance, was the Urim and Thummim, the visible sign of the presence of the invisible God; great Nature, as a high priest, resplendent with blazing suns and luminous orbs, bears on its front, luminously inscribed, the being and character of the Creator of all things. In reference to this subject we may adopt the language of the poet, rejecting any idea, however, if there be any, approaching toward Pantheism:

“Whose body nature is, and God the soul;
That, changed through all, and yet in all the same,
Great in the earth, as in the etherial frame;
Warms in the sun, refreshes in the breeze,
Glews in the stars, and blossoms in the trees:

Lives through all life, extends through all extent,
Spreads undivided, operates unspent;
Breathes in our soul, informs our mortal part;
As full, as perfect in a hair as heart;
As full, as perfect in vile man that mourns,
As the rapt seraph that adores and burns.
To him, no high, no low, no great, no small;
He fills, he bounds, connects, and equals all."

There are circumstances connected with the annual revolution of the earth around the sun, of a nature to confirm the belief of the existence of a God. The great globe on which we live, with its continents and islands, lakes and seas, rivers and mountains, icebergs at the poles, and gorgeous forests in the tropics, extended plains and bustling cities, and its toiling millions, and its aspiring, ambitious ones, is sweeping through space, at a rapid speed, in an orbit approaching a circle around the sun. This orbit is two hundred millions of miles in diameter. But why is it that we are not sensible of this motion? Why is it that the man at business, the worshiper in the church, the writer at his desk, or the scholar while studying the science of Astronomy, is not, each, sensible of the motion of the earth around the sun? Does the earth really move? The Ptolemaic system of Astronomy taught that it did not; that the earth was fixed, stationary, and immovable; and that the sun, the moon, and the stars, all moved around it. For many centuries this was the prevailing belief

which, by inspiration, were accommodated to forms and modes of human expression, were regarded as teaching clearly and unequivocally that the earth was immovable, and that the sun revolved around it. When it was taught by Copernicus, and demonstrated by Galileo that the earth moved around the sun, the doctrine was regarded as heretical, subversive of the principles of religion, and at war with the teachings of the sacred volume. From the Vatican and many a pulpit was this theory denounced with all the fervor and energy of a narrow bigotry. The cry was that religion and the sacred volume were assaulted by infidelity and a new theory in science. The Church had not then learned, and, it is to be feared, it has not yet learned the fact fully, that revelation teaches the doctrine of the redemption of a sinful race, not science or sciences. The object of the Bible is to teach the fact of the redemption of the human family by a mediator. This is sufficient to make it the most inestimable of all books—the Book of books. Yet because it teaches this great and sublime idea, and because it is a priceless volume—a pearl of great price, we are not, therefore, to regard it as teaching all human learning. Some suppose that if the Bible, somewhat after the Mohammedans in respect to their Koran, teaches all human science and learning, then, of course, it is superior to all other

of science. Some passages of the sacred volume, books. The reverse of this is true. If the Bible condescended to teach sciences taught by other books, then it would be on a par with human books. The superiority of the sacred volume to all other books results from the fact that it teaches something above human science and human learning—even the glorious doctrine, heaven-born and heaven-descended, of redemption by Jesus Christ. It then teaches that which is not taught by human books. It teaches that which human intellect unaided by the light of inspiration could never discover—not even by the aid of chemical analysis, and chemical laboratories, by telescopes and microscopes, or by mathematical investigations. Those who look into the Bible for science, in their own minds degrade and reduce to the level of human volumes that heaven-inspired book. In the Bible there may be, and are, allusions made to objects and topics connected with some of the sciences. These objects alluded to may be every way important. Their comprehension and understanding may be every way important. Yet we are to look to science for an explanation of their nature. The agreement of the doctrines of religion with the real teachings of the Bible of course becomes a very important question. In this agreement we are first to look to science to learn what it teaches, and com-

pare this with the real teachings of the volume of inspiration. The conduct of the Church in reference to the introduction of the Ptolemaic system of Astronomy ought to teach it a lesson in future. At this distance of time we can look back and smile at the whims, the prejudices, and the little bigotry then displayed by many ecclesiastics who were esteemed profoundly learned. Sometimes, in looking at the amusing foibles of others, we are in danger of forgetting ourselves and of falling into similar errors. We should, living in an age when the sciences are making unparalleled progress, beware lest future generations smile at us in consequence of our attachment to certain tenets, and our opposition to scientific investigations and discoveries.

When Copernicus taught that the earth moved around the sun, the Bible was not the book to resort to either to prove or disprove the fact. There should have been no appeal in the case made to that volume. There was nothing in the fact of the earth either revolving around the sun, or in its being stationary, to subvert religion. The volume of inspiration did not teach Astronomy. The allusions to that science were made in language in vogue in that day. There was a propriety in this. Had the present system of Astronomy been taught in the time of Abraham, it would have been incom-

prehensible. The theories then taught, had they been adopted in the sacred book, would not suit the present age. If the expression may be allowed, there was infinite wisdom displayed in the fact of no human theories and science being incorporated into the glorious truths of Revelation. The facts of Revelation are sacred and God-like in their nature. He that would confound the two and force the Bible into a conflict with science, true or false, acts as unwise and impious a part as the children of Israel did when they took the Ark out to war on the enemy, and thereby brought disaster, confusion and defeat on themselves. The Ark should have remained in the Tabernacle, and the armies of Israel should have gone out and warred with the enemy.

When Copernicus, Kepler and Galileo were laboring to prove the truth of the present system of Astronomy, they, in the spirit of true philosophy, resorted to scientific induction. They had to contend against the Bible falsely pressed into service against them; against Logic, which, in that day, was esteemed sufficient to supplant facts, observations and discoveries; the prejudices of the age, more formidable than Goths and Vandals, and the learning of the Middle Ages, then in its dotage. Lord Bacon, a man more admired than understood, whose works are oftener praised than read, set himself in the most ridiculous opposition to the new theory of

Astronomy, with all its facts and demonstrations staring him in the face; and he actually wrote crudities and whims enough against it, to have consigned any name to oblivion, save that of the reputed father of inductive philosophy. Many a learned man, in his own estimation, in that day considered Bacon's judgment as demonstration, clear and positive, against the facts exhibited in proof of the Copernican theory; and no doubt these worthies in learning benevolently and charitably regarded Copernicus and his coadjutors as crazed enthusiasts. But, against Logic,* against the Church, against Prejudice, against the Schools, against the *Lights* of the age, by the force of Truth, Copernicus, Kepler and Galileo triumphed gloriously. The Church† has long since seen and confessed its error in this unnatural opposition. Logic, prejudice, and the learning of the dark ages may still be found skulking about in the dark corners of the earth, *willing at least* to renew opposition to similar discoveries.

The Telescope has done much to demonstrate the truth of the Copernican system of Astronomy. This instrument shows Venus to be subject to the

*Logic in the fifteenth century, was very different from logic in this nineteenth century. Then it was regarded as a sort of cabalistic science, as to its efficacy in discovering truth and confuting error.

†Of course the Vatican in its infallibility took the lead in the crusade against Astronomy.

same changes or phases that the moon is ; which fact proves that its orbit is within the orbit of the earth, and that it revolves around the sun — a fact, duly considered, sufficient to convince any one of the truth of the present system of Astronomy. The fact of eclipses being foretold, together with the transits of Venus and Mercury, constitutes additional evidence. Further proofs on this subject, in a series of sermons like these, is deemed needless. There is a variety of motions on this planet, which, by their speed, astonish us : such as the flight of a bird, the swiftness of a race-horse, the rapidity of the steam-car and the steam-boat, and the speed of a cannon-ball. But these, compared with the motion of the earth, are slow and inconsiderable. The great globe with all attached to it, performs a revolution in an orbit of two hundred millions of miles in diameter, in a period of twelve months ; consequently passing over nearly six hundred millions of miles in that period. Of course, in considering the diameter of the earth's orbit, as being one third of its circumference, the ellipticity of the orbit will be borne in mind. Every day, the earth is transported through space one million, six hundred thousand miles. During the seven hours we repose in sleep, we are transported four hundred and seventy thousand miles, along the earth's orbit. While one walks at an ordinary pace, one mile,

the earth passes over a distance of eighteen thousand miles; nearly the distance round the globe. At the same pace, while one would walk four miles, the earth would move over seventy-two thousand miles of space. Every minute we are carried a distance of eleven hundred and thirty miles; every beat of the pulse we are darting through space at the rate of fifteen or twenty miles. This stupendous motion of the earth, in its orbit, is the most accurate and uniform of any of which we have an idea connected with man's movements and machinery. Punctual to a minute, and even a second, the planet on which we live arrives at the same point in its orbit each year. There is neither delay nor haste in its motion. Innumerable comets cross its orbit; the zodiacal light, a zone of small planetoids, at certain seasons, comes near, or perhaps in contact with it; the moon, twice in each lunation, at its ascending and descending nodes, crosses it; yet no accident or disaster ever occurs. Even as the Son of Man was in the ship on the sea of Galilee, and amid tempests, waves, and winds, all was safe; so the hand of our heavenly Father, in wisdom and power, guiding the earth, with its forests, cities, and empires, makes all secure; none need apprehend disasters and calamities. Disasters do occur in steam-boats, in ships, and on railways, but journeying around the sun, infinite wisdom and

benevolence steer us. In reference to this, we may adopt the language of the Psalmist, and exclaim, "Lord, thou preservest man and beast!" All the primary planets, from Mercury to Neptune, in connection with the earth, are revolving around the sun; some of these are more than a thousand times larger than the earth. The secondary planets, or satellites, and the rings, are revolving around their primaries, and then in connection with the primaries, around the sun. The comets, many millions in number, some of them enormously large bodies with sweeping trains, are approaching the sun in every direction, and revolving in exceedingly elliptical orbits, around that luminary. What but Infinite Power, guided by Infinite Wisdom, could securely, uniformly, and without mishap guide the course of all these stupendous worlds? Here we may look up, not with the eye of an enthusiast, but with the eye of devotion and reason, and: without arrogance, in confidence of spirit, exclaim, "I know there is a God."

God should not be regarded as a principle, or law, or material agent, but as a personal or living being, endowed with intelligence, will, and the power of choice. Observation teaches us that there is a cause for every effect. So universally does our observation extend on this subject, that

we almost instinctively reject the thought of occurrences falling out under any other law or by any other mode. Every effect must have a cause. The mind cannot yield to the belief of an eternal series or chain of causes and effects. The great law of mutability governing all created objects, teaches us that there must have been a beginning or commencement of these changes. Hence there must have been a beginning of these changes of created objects, and a first material cause. We may not only affirm that an effect must have a cause, but a cause must, however paradoxically it may sound, have its cause. Accepting this as true, we may look up through all material or secondary causes, to the great unoriginated Cause of all causes. This unoriginated Cause is immaterial, uncreated, and eternal: in other words, the God of the Bible. In this age of light, scientific research, and profound investigation, no one having respect for truth and possessed of a good intellectual organization, thinks of denying a first cause. But when this admission is made, we are not to suppose that in all cases the fact is acknowledged that there is, as is taught in the Bible, a God. Many regard this first cause, the existence of which they freely admit, in the light of a law, or principle. This, of course, is no more than a system of materialism. Say that the law according to this theory be the law of gravity,

under which we have our existence and by which we are preserved and protected; what room, then, is there for devout affections or for prayer? What motives to obedience, or to virtue, or holiness? If Deity be a law, such as the law of gravity, all religion is made null and void. The God of the Bible is described not only as having a real existence, but as a person. Will, choice, power, intelligence, wisdom, motives, and designs are ascribed to him. The character given him in the volume of inspiration accords harmoniously with his character as seen and reflected in the volume of creation. The invisible things of Him are seen and understood by the objects of creation. Wherever we direct attention to the works of creation, we see marks of design and intelligence. For instance, in the revolution of the earth around the sun, we see the design is that there should be a succession of seasons, and that all parts of the globe, poles and tropics should enjoy the heat and light of the sun. This design indicates an intelligent, personal, Being. Wisdom and benevolence are inscribed, in characters unmistakable, on every leaf of the volume of Nature, harmonizing with the teachings of the Bible. Wisdom and benevolence are the attributes, not of a law, but of a personal, living, being. So far from the laws of nature occupying the place, and in the estimation of some, being Deity, they

are creatures and servants of his will. These laws are constantly, uniformly, and perfectly performing the behests and commands of the God of the Bible. Recurring to the original meaning of the word Angel, we may appropriately call the laws and forces of nature Angels. Of course, though, angels of this character would be different from those bright and radiant ones hymning praises around the throne of God. Gravity has its change and object just as much as the angel, seen in the Apocalypse, standing in the sun. That philosophy must be blind and *unphilosophical* that would banish him from the domain of creation which was created and is governed by him, and substitute in his stead laws and causes which have no existence apart from that power whose position they would occupy. There is, according to the strictest rules of demonstration, some thing or some agent, apart from and independent of the bodies and forces of space. When I look at the planet Venus, a part of the year the evening, and a part of the year the morning star, the physical effect is, that on the retina of my eye an image of that beautiful planet is made. From this image of the planet on the retina an impression, or sort of telegraphic dispatch along the nerves, is made to the brain; then there is a conviction, or consciousness, that the planet glittering in its radiance and suspended in the voids of space,

has an existence. This sense, or conviction, existing in the cranium, is not tangible, material, or ponderable. It is something distinct from and unlike the material. It is, in short, immaterial. There is, then, a perceptive, conscious, agent, unlike matter, in existence. It is capable of perceiving the existence of material objects, and the laws governing them. From this perceptive, reasoning, agent, differing in all respects from material agents, we may ascend to an uncreated, unoriginated intelligence who created and spoke all material objects, sun, world and stars, into existence.

All power connected with human beings is located in the will. For example: I lift up from the table the inkstand out of which I now write — where is the source of power that elevates it? Not in the nerves or muscles of the arm. Sever my arm from the body and it could never elevate the inkstand. The power is located in my will. I resolve to elevate the inkstand; the resolution made, immediately the nerves and muscles obey the behest of the will, and the object is accomplished. The will in human beings is the source of all power. When the will is separated from the body there is no longer any power or ability in that body. We may look up through all the forces and laws connected with matter to the great eternal, uncreated Will, as the source and origin of all power. Grav-

ity, and every other law of nature, apart and disconnected from this great creating Will, are as powerless as the body when the mind is separated from it, or the nerves and muscles of the arm cut off from the body. The source of all power in the entire realms of creation is in the will of God. He spoke into existence the law of gravity and delegated to it the enormous physical force possessed by it. He called man into existence, delegated to him the power which he has, and has made him responsible, morally, for the use of his powers. The God of the Bible, then, we regard not in the light of a law or principle, but as a personal, intelligent Being. This view of his character is at the foundation of all true religion. We do not look to him as to stern necessity, or inexorable fate, or blind chance, or as to an eternal succession of causes and effects, or as to an immutable law of gravity, but as to our Heavenly Father, with affections to love us, wisdom to guide us, power to uphold and protect us, goodness to bless us, and with a will to determine, to reward all our pious and virtuous actions. This character of the Divine Being may be seen, as in a mirror, reflected in all the works of his hands, from the dewdrop, pearly and orbed, glittering in its purity and radiance on the petal of the rose in the young golden beams of the rising sun, to the magnificent Jupiter, thirteen hundred times larger than

the earth, accompanied by its four moons in its majestic course around the sun. On this subject, in relation to the ocean, the poet gives utterance to these sublime sentiments :

“Roll on, thou deep and dark blue ocean—roll !
Thou glorious mirror where the Almighty's form
Glasses itself in tempests; in all time,
Calmed or convulsed—in breeze, or gale, or storm,
Icing the pole, or the torrid clime
Dark-heaving; boundless, endless, and sublime—
The image of eternity—the throne
Of the Invisible.”

From the collocation and disposition of the bodies of space, we may derive an argument in favor of the existence of Deity. This argument might be with much propriety extended to those astral systems brought to view by the improvement of modern telescopes. Not only in the system of stars with which we are surrounded may there be seen binary, triple, quadruple, and multiple stars, but out beyond the entire zone may be seen numerous magnificent collections, which, in magnitude, seem almost universes in themselves. Of these I will speak in a future discourse. For the present, all consideration of astral systems will be waived, and for the sake of concentrating attention, the collocation and disposition of the bodies of the solar system will be viewed in their relation to the existence of a God.

The solar system may with truth be regarded as a great and sublime piece of mechanism, indicating as clearly intelligence and design as a clock or a watch. This "horologue machinery" not only marks times, but indicates that the Hand that constructed it is divine. The Sun, being five hundred times larger than all the bodies of the solar system, is located in the centre of that system. Had it been placed to one side of the system, for instance, in the orbit of Neptune; such is the preponderance of its gravitating force over the other bodies of the system, that derangement and confusion would have resulted. Had it been placed at so short a distance from the centre as the orbit of Venus, consequences would have followed of a hazardous nature. There are arrangements connected with the Sun, for warming and lighting up the whole solar system. No position would be so favorable as the central one for the great warming and lighting agent. None doubt that the provisions for warming and lighting a house are the result of design and care; equally manifest is it that the Sun was intended to subserve a similar end in the solar system. The size of the planets vary to an astonishing extent. The Earth is much larger than Mercury. Some of the larger planets are more than a thousand times larger than the Earth. The smallest planet, Mercury, is nearest the Sun; the

larger ones are farthest from the centre of the system. Jupiter, the largest planet in the system, has three others, Saturn, Uranus, and Neptune, lying beyond its orbit. But the general rule is that the largest planets are farthest from the Sun ; slight exceptions to the rule do not affect its validity. Had Jupiter, Saturn, Uranus, and Neptune, been placed in the orbits of Mercury, Venus, the Earth, Mars, and the Asteroids, the result would have been too great a preponderance of gravitating force at the centre of the system. If the smaller planets had occupied the orbits of the larger ones, they would have been drawn out of their position. Ruin and another chaos would have ensued under such an arrangement. Moons, or satellites, constitute a class of bodies in the solar system. The Earth has one ; as many as eight have been discovered in connection with Saturn. Those planets farthest from the Sun are accompanied by satellites ; those nearest the Sun, as Venus and Mars, have none. Saturn and Jupiter have rings, presenting a luminous and splendid appearance. These moons and rings, in connection with those planets of the system remote from the Sun, where there is a diminution of solar light, subserve the purpose of splendid chandeliers. In these we see a wise compensation for the diminished amount of light from the central luminary. Mercury is so near the Sun, and

is in such a full blaze of light, that the four moons of Jupiter, or the eight of Saturn, would be a needless appendage.

There are three circumstances connected with the disposition of the orbs of the solar system worthy of careful attention. All the primary and the secondary planets revolve around the Sun in the plane of the Earth's orbit. Take a small globular body and sink it one-half in the centre of a table ; draw around this globe on the table nine circles ; and around a point on each circle, representing the place of the primary planets, draw as many circles as there are moons accompanying the planet, and then the surface of the table will represent the plane of the Sun's equator, corresponding to the plane of the Earth's orbit. The slight inclination of some or all of the orbits of the planets to the plane of the Earth's orbit affects not the general rule ; only forming an exception to it. All motion in the solar system is in the same direction. Recurring to the above illustration, let the globe sunk into the table represent the Sun turning on its axis perpendicular to the plane of the table ; let this motion be from west to east ; then suppose each primary planet, as represented on the table, to turn from west to east on its axis, nearly perpendicular to the plane of its orbit ; then, in addition, consider each of the planets in the same direction from west to

east revolving around the Sun ; then, moreover, regard the satellites as moving in the same direction in their rotary and orbital motions, accompanying their primaries around the Sun ; which will give you a correct view of the motion of the solar system. The orbits of the planets are not circles, but ovals or ellipses. This is uniform, with them all. These three circumstances seen in the mechanism of the solar system indicate design and intelligence. We cannot suppose that they result from chance or laws blindly operating. The Hand of an all-wise, all-mighty Creator formed this magnificent piece of world-machinery. The greatness of it, the perfection of it, the design seen in it, proclaim the Hand by which it was formed. Not only in every part of the solar system do we see indices pointing to God, the creator of all things ; but from the remote star and far-off nebulæ, every ray of light emanating and coming to us across mighty intervals, requiring millions and millions of years for the transition, falls on our eye through the telescopic tube, like a telegraphic dispatch announcing the existence of Deity in the plenitude of his wisdom and goodness in those distant parts of the universe where that star and nebulæ have their home.

The rotation of the Earth on its axes furnishes additional evidence of the existence of a God.

The rotundity of the Earth has been demonstrated by navigators sailing around it. Resting on no pillars, foundation, or prop, it is a globe hung out in the voids of space. A bare consideration of which fact makes us intuitively conclude that it is upheld by the hand of God. It also turns once in twenty-four hours on its axis. This, in connection with its annual motion around the Sun, was taught by Copernicus. Fierce was the battle which he and his coadjutors fought over it. But truth prevailed over error, intolerance, and prejudice. One feels a sort of brotherhood, or relationship, to those noble spirits confronting and making war with the ignorance, superstition, and railery of a whole age. Never did great minds have to contend with greater odds. Never was victory more triumphant. It was a victory of the few over the many, of light over darkness, and of truth over error. In our own day, the pendulum, vibrating, has more than demonstrated that the Earth turns on its axis; it has exhibited it to the eye. The motion of a body on its axis is different from its motion in its orbit. There might be orbital motion without rotation; which is true, no doubt, of many comets. Inertiæ, or a passive condition, constitutes one of the properties of matter. Inertiæ may be expressed as the perseverance of matter, or a capacity to remain in the condition in which it is put, if no outward ob-

struction or impulse interfere with it. The globe must have had an existence before it turned on its axis. This being true, it would have remained in that situation forever if some impulse had not set it turning on its axis. Whence did this force originate? What power or hand imparted it? It was manifestly given by an intelligent hand. For there is an unvarying uniformity in it. For ages it has continued without a minute's variation. It results in the succession of day and night; without which, life, animal and vegetable, could not exist on it. Here, then, is the benevolent intention of foresight and wisdom. Moreover, this impulse must have been imparted to the Earth in a certain direction to produce rotation. "An impulse imparted to a sphere at rest, passing through its centre of gravity, will cause all its parts to move with equal velocity in a straight line." An impulse passing through any other part except the centre of gravity produces a rotatory motion. A single impulse of sufficient force imparted at a point twenty-five miles from the line of the centre of gravity, it is computed, would result in rotation, as now seen in the Earth. The original impulse which caused the rotation of the Earth had to be imparted at a precise point. Taking into consideration the objects or design of the rotation of the Earth, the uniformity of its motion, and the way in which that motion

was caused, we have deducible therefrom evidence of no inconsiderable strength for the existence of a God. The law of gravity could never effect rotation in a sphere. The forms of the planets, and, indeed, all the orbs of space, result, according to the operation of fixed laws, from the mutual attraction of their particles. Rotation is a circumstance distinct from the form of a sphere, or its translation through space. There is nothing of the dogmatical in emphatically affirming that the rotation of the Earth, resulting in the phenomena of day and night, proves that there is a God. Viewed in relation to this motion of the planet on which we live, the expression of the Psalmist is full of meaning: "Day unto day uttereth speech, and night unto night sheweth knowledge."

The fact of our not having seen the Deity with our eyes, or of our having no evidence of a sensible character of his existence, forms no real objection as to the fact of his existence. No one hearing these discourses, or few, if any, who may read them, has ever seen the city of Canton in China, or Jeddo in Japan, or Timbuctoo in Central Africa, yet any one doubting the existence of those cities would be regarded as a lunatic or an idiot. Mind, electricity, and gravity can neither be seen, weighed, nor touched, yet, such positive evidence have we from effects and results of their existence that no-

one thinks of doubting the fact. We have as much evidence to believe that there is a God, as we have to believe that there is such an agent in the physical world as gravity. Neither has been seen by human eye; both can be demonstrated to have an existence from results. Deity, from the works of his hands; gravity, from its effects and consequences. The mind has never been seen; no analysis, no physiological investigations, no art of dissecting, no anatomical research, has ever made it visible. Yet by its developments, the evidence for the existence of mind is clear to all thinking and reasoning people. Though God cannot be seen in this life by the eye, yet he has so developed himself in the government, or providence, which he exercises over all things, in his revealed word, and the redemption of the human family, and in the works of creation, that clear and satisfactory evidence is furnished of his existence. So that, I think, without the danger of incurring the charge of harshness, it may emphatically be affirmed, that "the fool," in the literal acceptance of the term, "hath said in his heart, There is no God."

In this discourse, specific reference has been made to the orbital motion of the Earth, and its rotation on its axis. These are not the only motions among the heavenly bodies. What a restless throng of activities, seen in the solar system! All is mo-

tion and ceaseless change! The great globe on which we live, and move, and have our being, sweeping through the fields of space, with a motion that neither abates nor tires, in an elliptical orbit around the Sun, accompanied by the vicissitudes of Summer, Autumn, Winter, and Spring, and at the same time turning on its axis, producing day and night! Wherever we turn our eyes in the solar system, the same restless change and unceasing activity pervades the whole; inferior and superior planets, comets, satellites, aerolites, and zodiacal light, are all in active motion. Even the Sun, with all the vast machinery of the solar system around some great unknown centre, is darting through space at thrice the speed of the Earth in its planetary ellipse. The stars usually called fixed, are in truth not so, but are in rapid and ceaseless motion. There is nothing in the vast physical universe that is fixed, permanent, and abiding. All is change, unceasing change. The spirit disturbed and unquiet at such contemplations, looks across the flickering realms of change to the abode of the great, unchangeable One, and receives a filial satisfaction in remembering that

"His piercing eye at once surveys
Where thousand suns and systems blaze,
And where the sparrow falls;
While seraphs tune their harps on high;
His ear attends the softest cry,
When human misery calls."

In the early ages of the world, in the absence of the light of Revelation, and ignorant of Astronomy, men bowed down and worshiped the sun, moon, and stars. A knowledge of Astronomy teaches us in this day not to worship the sun and moon, but Him who created the sun and moon. Through Nature we can look up to Nature's God ; and in him we can see a universal Father, full of goodness and full of love. And when we remember that that great and august One, who created all worlds, and who by the word of his power upholds all things, is mindful of sparrows and hears the cry of young ravens, then a feeling of encouragement comes over our hearts, and we regard it as a high and holy privilege to raise the voice of devotion to his great and glorious throne. The vast and resplendent universe we may regard as one magnificent house ; the God who created all things as the universal parent: ourselves as children and part of a great family, and the globe on which we live as an apartment in this stupendous house. With these views, we can, as children to a parent, come to our Heavenly Father, in prayer and supplication, with the assurance that every petition of ours, uttered in the voice of supplication, will reach his ears and secure blessings and mercies suited to our wants. We come to him not as to an unchangeable law, or a deaf material principle, or an unfeeling agent, but

as to a living, personal Being of goodness infinite, and love boundless as the universe, and compassion as varied and minute as our necessities. When we approach him in prayer, and, commencing in the form as taught by our Saviour, say "Our Father who art in Heaven," a feeling comes over us full of sacred rapture that we are his children, the objects of his love and care. Such and so endearing are the relations we sustain to the great and august Being whose works fill us with so much wonder, and furnish us with sublime themes for thought and contemplation.



S E R M O N I I.

OMNIPOTENCE OF DEITY.

"Lo, these are parts of his ways; but how little a portion is heard of him! but the thunder of his power who can understand!"—JOB xvi: 14.

The authorship of the book of Job has been a perplexing question to biblical critics. I see no reason why we may not say Job himself was the author, just as Cæsar was of his "Commentaries," Moses of the "Pentateuch," Josephus of the "Antiquities of the Jews," or Hervey of his "Meditations." But the majority of biblical critics have decided that Moses, during his forty years' sojourn in the land of Midian, prior to the time of his entering on his great mission to Pharaoh, and his public ministry, wrote this book of the sacred canon. The references in it to natural history and meteorological phenomena, physical geography and astronomy, convince us that Arabia was the country in which Job lived, and gave such a remarkable example of patience under the severest afflictions. It

may be safely affirmed that no part of the sacred volume abounds in such beautiful and sublime descriptions as the book of Job. Indeed, it is not only conspicuous among the books of the sacred canon for its glowing imagery and sublime thoughts, but it loses nothing, perhaps is much the gainer, by a comparison with the master productions of classical antiquity: such as Herodotus, Thucydides, Livy, and Tacitus. Gibbon, who in no sense could be said to be partial to the Christian system, remarks: "In the spirit of enthusiasm or vanity the prophet rests the truth of his mission on the merits of his book; audaciously challenges both men and angels to imitate the beauties of a single page; and presumes to assert that God alone could dictate this incomparable performance." * * "The divine attributes exalt the fancy of the Arabian missionary; but his loftiest strains must yield to the sublime simplicity of the book of Job, composed in a remote age, in the same country, and in the same language." * Job's description of the war-horse, his description of leviathan, and the spirit of Eliphaz, are unsurpassed. In this book of the sacred canon we learn much of the character, perfections, and providence of God. In the chapter in which the text stands, it is affirmed that the wisdom and pow-

* See "The History of the Decline and Fall of the Roman Empire, by Edward Gibbon, Esq." Milman's edition, vol. 5, p. 116.

er of God are manifest in the works of creation. "By his Spirit," it is said, "he hath garnished the heavens; his hand hath formed the crooked serpent." In the text it is said, "these are parts of his ways; but how little a portion is heard of him! but the thunder of his power who can understand!" The teaching of the text is that the power of God is great, inconceivable, and infinite. This is taught throughout the volume of inspiration. The power of God is seen in every department of nature. The earthquake, the volcano, the sirocco, the cataract, the tornado, and the thunder, proclaim it in a fearful manner. The history of providence and the atonement exhibit it in moral grandeur. It is distinctly seen in conversion and sanctification. The resurrection, the final judgment, and the renovation of the earth by the conflagration fires present us with stupendous displays of the power of God. The omnipotence of God was displayed in the person of Christ (for in Christ dwelt the power of the Godhead bodily) when he healed the sick, cleansed the lepers, cast out devils, opened the eyes of the blind, bid the deaf hear, loosed the tongues of the dumb, raised Lazarus from the dead, and stilled the raging waves of the tumultuous ocean. As the Being or existence of Deity is the basis and foundation of all religion, so his natural attributes, such as his eternity, his omnipresence, his wisdom, his

goodness, and his omnipotence, form the groundwork of the Atonement. The former constitute the alphabet and the elementary principles of religion: the latter, the eternal pillars on which rests the glorious superstructure of Redemption as revealed to us in the sacred Scriptures. How important that we have correct and adequate ideas of both!

The object of the discourse on last Sabbath evening, as those of you then present doubtless recollect, was to prove and illustrate the existence of Deity from various Astronomical phenomena.

The Omnipotence of Deity is now propounded for illustration from a similar source.

It is just as impossible to convey a definite idea of the natural attributes of Deity, by abstract statements and metaphysical arguments, as of his existence. Sensible representations are necessary in both instances. The nature of the human intellect, and the lofty character of those topics, alike require this. The human mind arrives at most of its ideas, by comparison. God's own works furnish the best standard by which to compare his character. Those august specimens of his works, seen in the range of astronomical science, better than any other part of the domain of creation, assent with his glorious character. In the study of astronomy, globes, charts, diagrams, planispheres, and planetariums,

are useful; such sensible representations will convey clearer views than precise statements and elaborate explanations. Skeletons are necessary in order to a successful study of anatomy. Without globes and maps but little proficiency can be made in the acquisition of geographical knowledge. In chemistry and natural philosophy, an apparatus for making experiments is necessary. In short, such is the nature of the human mind, that it requires the tangible to represent the intangible, the visible the invisible, and the sensible the impalpable to the senses, and the concrete the abstract. A visible creation is necessary to convey to us an adequate idea of the attributes of the Deity. The physical sciences, like that ladder seen in the patriarch's vision, extending from earth to heaven, reaches far towards the abode and presence of the great God, affording an elevated and glorious position from which the divine character and attributes may be favorably contemplated. From such a position we are called upon to contemplate the Omnipotence of Deity. Of course, the light of revelation will not be excluded. By the aid of created objects, in harmony with celestial light, a double advantage will be enjoyed.

In taking into the mind a clear and full idea of the globe on which we live, it is necessary that we proceed, step by step in the process. First we

should begin by contemplating the size of some definite object, such as a house; that should be compared with the size of a landscape; the landscape with a mountain; the mountain of moderate size with the great chain extending across a continent, as the chain extending through North and South America, bearing the names of the Rocky Mountains and the Andes. Then the mountain chain should be compared with the large island such as Borneo or New Holland, the island with the continent, then the continent with the whole globe. On beginning with the small river, compare it with the large one, such as the Mississippi; the large river compare with the lake, such as Lake Superior; then the lake with the sea; that with the large ocean, the ocean, such as the Atlantic, with all the oceans on the globe; and then the entire mass of waters with the whole globe. Or let us consider one human being, then compare him with a whole city; the city let us compare with a state; the state with the great confederacy in which we live; our republic with the empire of China; the Chinese empire with all the nations of the globe. All of these processes will be necessary to enable us to comprehend fully, in all its extent, the great globe on which we live. How much greater effort than this will be necessary to give anything like a suitable conception of the Omnipotence of Deity. The

great globe on which we live, thus comprehended as to its magnitude, reviewed in reference to its motions on its axis and in its orbit, as treated of in the preceding discourse, furnishes a magnificent display of the power of Him who created and who guides its unceasing motion. The force of pent up winds and waters, the might of the tornado and earthquake, the strength of the giants who lived in antediluvian times, and the power of engines, in combination, would accomplish little toward propelling our planet in its orbit, or on its axis.

Seen on a clear evening, glittering in its radiance, and pre-eminent among all the sparkling beauties that adorn night's gem-fretted concave, is the planet Jupiter, reminding one of the Jupiter of Homer among the gods of mythology, seated on the top of Mount Olympus. Situated between the Asteroids and the orbit Saturn, four hundred millions of miles from the earth, consequently four hundred and ninety-five millions of miles from the sun, performing a revolution about the sun in a little less than twelve years, this planet, fourteen hundred times larger than the earth, pursues its unwearied journey through the voids of space, accompanied by four moons. This magnificent Jovian system, in its ceaseless motion, gives us an illustration of the divine Omnipotence, which makes a deep impression on the mind. Not far from the north pole the star

61 Cygni is seen. Under the telescope it proves to be a double star; in consequence of which the annual parallax has been satisfactorily obtained, which determines its distance precisely from the earth. Light, moving with a velocity of one hundred and ninety-two thousand miles per second, which is the swiftest motion of which we have any knowledge, would require more than ten years to pass across the mighty void intervening between that star and the earth. To comprehend fully the magnitude of the Jovian system, and the enormous force necessary to propel it in its unceasing flight round the sun, will require mental effort of no ordinary nature.

By comparing one mile with a thousand, the distance from America to Europe, with the distance from the earth to the moon; the distance from the moon to the sun, with the distance from the sun to Neptune; and the distance from the sun to Neptune, which would require about four hours for light to emanate from the former to the latter, with a distance which would require light one year to pass over the interval, we may have some idea of the distance from the earth to 61 Cygni. While these magnitudes and distances may serve to enhance our views of the divine power, let us make use of the mode by which we arrive at a conception of them to aid us in comprehending a more exalted theme. How shall we fully and adequately com-

prehend the Omnipotence of Deity? What scale, or sounding-line, or rule of measurement, will convey to our minds an idea of the width, depth, and height of that august subject. Let us first consider the strength of one man; then compare that with the strength of ten men; that of ten men with one hundred; that of one hundred with a whole nation, and then the power of a nation in combination with the whole race now living. Let us compare the strength of a man of the present age, with one of the giants of the antediluvian world; one of those giants with the whole race of giants that then lived, and then the combined strength of all those giants with the combined strength, or with one being possessing the combined strength, of the entire human race, extending from Adam to the present time. From this supposed being, a representative of the entire power of the whole race, which would be a limited finite power, let us turn attention to the unlimited, infinite power of the God of the Bible, and availing ourselves of the facilities just alluded to, let us make an effort toward the comprehension of his Omnipotence, described in such lofty terms in the sacred volume, and displayed on so grand a scale in the works of creation. "The thunder of his power who can understand!" The Omnipotence of Deity presents itself to the struggling and labouring intellect of man, as a theme that may ever be con-

templated with profoundest interest, but which will never be fully, in all its unlimited dimensions, understood. For a part can never equal the whole, the limited can never embrace the unlimited, the minute the exceedingly great, nor the finite the infinite. The magnitude of the created universe, infinite space and eternity, are themes that no human intellect can ever, in their fullness and entireness, embrace. Study and comparison will give us more extended views of those stupendous themes. Yet after the greatest intellectual efforts toward their comprehension, and after the most extended views that we can obtain of them, still there rests on the mind a shuddering sense of that which lies in obscurity beyond the range of our investigations. Of a similar nature to these topics is the Omnipotence of Deity. Like all of his attributes, this is infinite in its nature. Then we approach the investigation of the divine Omnipotence as we approach the infinite. Before us is the great, the august, the majestic, a feeling of the minute and of nothingness comes over us.

The history of Comets affords a striking manifestation of the Omnipotence of Deity. Comets constitute a separate class of the bodies of space; they are unique, erratic, and enigmatical. They suddenly, in many instances, burst upon our vision,

blazing forth with enormous trains, carrying consternation and wonder to the minds of the unenlightened, and then darting away in the fields of space, either never to return again, or not till after thousands of years have elapsed. Aristotle supposed that, on appearance, they were born, and that when they disappeared they died, or were annihilated. This view of the Stagirite made them monsters of spontaneous birth, reminding us of those giants in ancient fable, which sprang out of the earth, from the sowing of the teeth of the fabled monster.

Until the days of Tycho Brahe the nature of comets was not understood. Hence they were looked upon with terror and superstitious awe. They were regarded as the harbingers of pestilence, famine, and war.

"Here, in the night, appears a flaming spire,
There, a fierce dragon, folded all on fire ;
Here, with long bloody hairs, a blazing star
Threatens the world with famine, plague, and war;
To princes death, to kingdoms many crosses;
To all estates inevitable losses;
To herdsmen rot, to ploughmen hapless seasons;
To sailors' storms, to cities civil treasons."

In the year 1456 a very large comet appeared. Three years prior to that, Constantinople had fallen into the hands of the Turks, which created a consternation all over Christendom. Pope Calixtus,

then in the pontifical chair, ordered that prayers should be offered up in all the churches, to Almighty God, for deliverance from the Turks, the Comet, and the Devil. The Turk and the Comet were both formally excommunicated, according to the custom of the Vatican in reference to heretics. At noon the bells tolled to remind the people of the hour of prayer. The custom of ringing bells in Catholic countries, at noon, still prevails. How strange the origin of some of the usages and customs found at present in the Christian world! By connecting general intelligence and science with religion, many things absurd and ridiculous might be removed from the practice and observance of it, which now attach as excrescences and hurtful appendages. Had the infallible pontiff been acquainted with astronomical science, instead of being agitated with such puerile fears at the appearance of a comet, for which his successor must now be heartily ashamed, he might have hailed the blazing wonder as a messenger of the wisdom, power, and goodness of God, as it moved in its orbit obedient to the law of gravity. If physical agents, doing the bidding of the Divine Being, had been alone in being excommunicated, the evil and folly would not be so great an object of regret. But *moral* agents doing the will of their Creator have too often shared the same fate. The errors of the

past should instruct the future. Ignorance and folly can never advance the interests of the gospel; they may drive intelligent people into scepticism; they may bring reproach and contempt on the cause they would blindly advocate; evil in all cases, and not good, are they capable of effecting.

How different the feelings, in the present day, produced by the appearance of the Comet. The unenlightened may still be moved with superstitious terror at the appearance of these flaming wonders; but the educated are the subjects of far different emotions:

"When from the dread immensity of space.
The rushing comet to the sun descends,
With awful train projected o'er the world.
 The enlightened few,
Whose god-like minds philosophy exalts,
The glorious stranger hail. They feel a joy
Divinely great; they in their powers exult;
They see the blazing wonder rise anew,
In seeming terror clad, but kindly bent
To work the will of all-sustaining love."

Comets have a nucleus or luminous point near the centre, a nebulosity or hazy envelop, and a luminous train shooting off to a great distance, sometimes in a fan-shape, at others bifurcated, but oftener in a long, streaming, conical form. These bodies form a distinct class; they have many peculiarities. Yet they bear some resemblance to the sun, and the stars, which are all suns. The sun is surrounded

by a luminous zone called the zodiacal light, answering, in some sort, to the train of the Comet. The luminous atmosphere surrounding the sun, causing the phenomena of light and heat, bears some faint analogy to the nebulosity enveloping the nucleus of the comet. The sun and stars are self-luminous. Whether comets shine with their own native light, or whether they borrow their light from the sun, is a question concerning which different opinions have prevailed. Some evidently shine with their own inherent light; such was the opinion of Schroeter and Herschel respecting the celebrated one which appeared in 1811. The physical constitution of comets evidently varies in many cases. Some are destitute, no doubt, of a nucleus, others have transparent, but many, probably, a solid and opaque nucleus.

Some very curious and amusing speculations have been indulged in, as it regards comets, in relation to topics revealed in the sacred scriptures. It may not be inappropriate, here, to make some allusion to them; inasmuch as it will serve to give us a history of the opinions entertained on those subjects, by some eminent men of former times. Mr. Whiston supposed that the deluge of Noah was caused by the comet of 1680. His theory was, that the earth, in passing through the atmosphere of this comet, attracted, therefrom, a great

part of the water of the deluge; and that great tides were raised in the subterranean waters, causing the outer crust of the earth to be broken in rents and fissures, and through these the waters poured forth. Thus from the combined waters attracted from the atmosphere of the comet, and from fountains in the interior of the earth, Mr. Whiston supposed that the great cataclysm was produced. There is no evidence that there is water in the atmospheres of comets. If there is, as there is in the atmosphere of the earth, there cannot be a sufficiency for so great a purpose. Admitting there were enough to accomplish the object, there would, in such an event, be a transfer of a large amount of water from one part of the solar system to another, which would cause fatal results in disturbing the equilibrium of the system. Such an amount of water transferred from the earth to Jupiter, in addition to the disturbing effects which it would produce in the solar system, would leave our planet in a ruinous condition, for the want of a sufficient supply of an element indispensable to the existence of life. If there be water in the form of vapor, or in any other form, in the atmosphere of a comet, there is in the economy of that body, according to the regulation of the great Creator, a demand and necessity there for it, that the objects of life or other objects may be subserved.

As it regards the breaking up of the crust of the earth, by the force of gravity, in consequence of the near proximity of the comet of 1680, not a word need be said. Geological science will instruct us, that there are no great fountains of water under the surface of the earth, and that its crust has been upheaved, rent, and broken by dynamical agencies found within itself.

He supposed that the same comet would be the agent in effecting the final conflagration. In its perihelion passage, he supposed it would become so intensely heated, that in passing in the neighborhood of the earth, its enormous train would produce the fearful catastrophe. The internal fires of the earth, or the chemical constituents of the atmosphere will, either, or both in combination, be sufficient, under the operation of great laws controlled and governed by the God of the Bible, to effect that grand event. In consequence of the great heat and cold to which it is supposed comets are subjected, at their perihelion and aphelion points, Mr. Whiston supposed that they could not be the abodes of happiness. Hence he concluded they were the places for the punishment of the wicked, who were alternately hurried into excessive heat, and into all the rigors of insufferable cold. It is not improbable that Milton may have made allusion to this when he said, in *Paradise Lost*: —

. "The parching air
 Burns sore, and cold performs the effect of fire.
 Thither, by harpy-footed furies haled, G
 At certain revolutions, all the damned
 Are brought; and feel by turns the bitter change
 Of fierce extremes — extremes by change more fierce,
 From beds of raging fire, to starve in ice,
 Their soft ethereal warmth, and there pine,
 Immovable, infixed, and frozen round,
 Periods of time, thence hurried back to fire."

As it regards the temperature of the remote regions of space, nothing is known. Hence we cannot pronounce one point with any degree of certainty to be at either a high or low degree of temperature. If, then, the modern astronomer were forced to conjecture as to the moral uses of comets, instead of regarding them as the places in which lost spirits were imprisoned, he would rather regard them as splendid, flaming cars, in which redeemed spirits made excursions through the voids of space, beholding the beauties, the varieties, and the wonders of creation. These observations, it is hoped, will not be misapprehended.

The physical ends of comets are wholly enigmatical and inexplicable. As the wisdom of the Creator forms nothing in vain, we conclude that they answer some purpose. Sir Isaac Newton thought they performed the part of fire-makers to the sun. They frequently fall into that luminary, their centrifugal force being overcome. He supposed that

they served to keep up, on its surface, combustion; otherewise he thought there would be an exhaustion of heat and flame in the sun. May not these seemingly erratic orbs, as they dart away from the sun, carried along their orbits by the power of God, serve to convey from the remote voids of space free caloric and light to the source from which they had emanated. In their perihelion passage they could easily communicate this caloric and light to the sun. If this, or some replenishing agency analogous to it, be not true, we are at a loss to see why the source of light and heat on the sun's surface would not become exhausted. If this hypothesis be true, comets guided, in their extremely elongated orbits, often in periods of many thousand years, by the Hand of Omnipotence, are subserving great economical physical purposes in the solar system.

The orbits of comets are very different from those of primary and secondary planets.

Some comets move in an orbit called a hyperbola; this never returns within itself. Hence such comets visit the sun but once; then darting off through the voids of space, they are either taken up by the influence of gravity, by other systems, as lawless fugitives, or they wander on hopelessly and forever, on their returnless voyage, through voids of space, amid silence, and darkness, and utter nothingness. How like the course of these, those erring and stray-

ing ones, who obeying not those laws revealed from heaven, rush madly and irrecoverably into vice, where they endlessly move on into greater profundities of the darkness of misery and guilt.

There are other comets which move in extremely elongated ellipses. The great majority of them move in orbits of this latter description; and in periods longer or shorter, return to the neighborhood of the sun. The elongated ellipæ may be represented by a circular thread pulled at the two extremities until its sides almost touch.

The comet of 1811 had a nucleus six times larger than the earth, and a train of sixty millions of miles in length, more than half the distance from the earth to the sun. Herschel estimates the greatest length of the tail, as seen on the fifteenth of October, at one hundred millions of miles. It was estimated that it requires from three to four thousand years for it to make a revolution in its orbit. A body of this size, with such an enormous train, requiring such a long period of time to make a single revolution, and moving with a rapidity that makes the earth's motion in its orbit seem slow and trifling, gives us a display of the omnipotent energies of the great and glorious Creator on an august and grand scale.

Ideas and emotions of this kind will be greatly enhanced when we take into consideration the vast number of comets in the solar system. Kepler said

they were as numerous as the fishes in the sea. It has been estimated on good data, that there are not less than seven millions. Some of them move in a retrograde, others in direct motion; some approach the sun in the plane of the ecliptic, others at right angles, multitudes from all directions. This almost infinite number of comets in the solar system, moving in orbits from west to east and from east to west; frequently darting from all points of space, crossing the orbits of the planets, and even crossing each other's paths, fail not to give us a stupendous display of energy and power.

The o'er-arching concave of heaven, earth's huge mountains, flowing rivers and swelling seas, all speak of the Omnipotent Hand that made them. A more emphatic and eloquent language, however, in praise of the same Omnipotent Hand, is unceasingly uttered by those millions of seemingly erratic orbs, traversing all parts of the solar system. Like an august and splendid display of fire-works, blazing, dazzling, and emitting long gleams of splendor, they, in millions of tracks, streaming in imposing radiance, give us in diversity an illuminated representation of the power of the *Unseen One*, whose abode lies far beyond human ken.

The Sun, the centre of the Solar System, will furnish us with an argument in favor of the

topic of discourse. Situated in the centre of the Solar System, of enormous magnitude, and possessing ineffable splendor, the Sun in all ages has been regarded as a symbol of the Divine Being. Many nations have worshiped it as a visible representative of its unseen Maker; others have rendered divine homage immediately to it. Of all idolatry this is the most excusable. For it presents the most imposing scene of any object in the created universe. True it is, that many of the stars, which are suns of other systems, are immensely larger, and more brilliant than it is, yet owing to their great distance, their size and brilliancy are amazingly diminished to us. So that we may regard the sun as the most glorious of all created objects, and as that which on a grand scale adumbrates that August One, whose visibility has never been reached by the utmost sweep of the far-seeing telescope.

It will be appropriate in this discourse to direct attention to such facts connected with the luminary of day, as afford an illustration of the Omnipotence of the Creator of all things. The enormous magnitude of the sun fills our minds with amazement. It seems almost a universe within itself. The orbit of the moon would be a girdle far too small to embrace the circumference of that huge orb. If the centre of the sun were placed beside the centre of the earth, the former would extend almost as far

beyond the orbit of the moon as it is from the earth to the orbit of our own satellite. Then if the sun were a hollow sphere, the earth in its centre, the moon, as now, might freely revolve about it, and beyond there would be ample back-ground to represent all the fixed stars. A mountain-chain on earth seems almost incomprehensibly great; a whole continent much greater than the mountain; the oceans taken together as a whole, far greater than the continent; the whole globe immensely larger than the oceans. As large as the great globe may seem, it would require thirteen hundred thousand globes, the size of the one on which we live, fused into a mass, to make one of the magnitude of the sun. The human mind is absolutely incapable of taking into a single conception, in all its fullness, an idea of such extension. I suppose the sun of different persons, that is, the idea of it, as it exists in different minds, varies as much as the countenance of those individuals. All may have in mind what to them seems a stupendous thought; but none have one answerable to the original object.

Very singular phenomena connected with the sun are those "spots" seen on its surface. Through the telescope they appear as huge worlds lying on its surface. Some of them are as large as the globe on which we live. There are good reasons for believing that they are openings or breaks in the lu-

minous atmosphere that surrounds that orb. That is, those phosphorescent clouds, parting, exposes a certain part of the opaque surface. At one time, one of these spots has been seen to break asunder, the two parts driving violently in opposite directions; at another, it has been observed that one of them would suddenly be broken up, as a piece of ice would be thrown on a hard surface, the pieces flying in every direction.

In the motion of these spots, the extensive change and the powerful forces impress our minds, that no common energies are there in operation. In twenty-five days and ten hours, the sun revolves about its axis; it describes a small irregular orbit about the centre of gravity of the solar system; it has a motion through space around some unknown centre; all of which motions indicate the Omnipotence of the Hand of Him who is symbolized by it. Enthroned in the centre of a vast system, almost infinite to limited capacities, sending forth bountiful supplies of light and heat, as far, or it may be, farther than the orbit of Neptune, and binding by the influence of gravity in one harmonious and accordant whole primary planets, satellites, and comets; the sun, possessing and imparting such amazing energies, gives us an imposing exhibition of His power whose existence it dimly and faintly shadows forth.

It may not be inappropriate here to make an allusion to the Mosaic account of Creation. This will be more suitable from the fact that reference, in this discourse, has been made to the great periods of the revolution of some of the comets, and to the motion of the sun through space, accompanied by all the bodies of the system, around some unknown centre. The sun, in six thousand years, would make but a small part of a revolution in its enormous orbit. Many of the comets would not make two revolutions in that time. If we are approaching the closing period of this earth, as many honestly believe, it is difficult to conjecture why some comets should be placed in such orbits that they would, during their existence, perform no more than two or three revolutions; or why the sun, accompanied by a grand cortege of worlds, be suffered to continue in existence no longer than it would perform a small fraction of its great revolution.

In the mutation of the earth's axis, in the precession of the equinoxes, and in the variation or motion of the orbits of the planets, there are found revolutions varying from nineteen years to two hundred thousand years. These long periods in the solar system clearly indicate that it was formed for a duration, which to human capacity might seem to extend so far toward the infinite, as to be lost in remote obscurity. Such facts lead us to the conclu-

sion that the solar system has either existed during long epochs in the past, or that it will continue in existence and activity during countless cycles in future. Or it is not improbable that both may be true. If geology be not the veriest fable, and if those entombed fossil remains found in the strata of the earth's crust, be not a mocking enigma, then the planet on which we live has turned on its axis, moved in its orbit, remained with its poles fixed in the heavens, has been the theatre of life, and has been subject to vital and physical laws during untold periods, which swell one upon the other, until the laboring mind feels a conscious incapacity to comprehend them. This view of the subject, in nowise conflicts with the teachings of the sacred volume. For all the facts of geological science confirm the account that is given in the bible, that man was created about six thousand years ago. We cannot think that prior to six thousand years now past, that the infinite realms of space were desert, empty, and tenantless ; irradiated and adorned by, nor sun, nor system, nor planet, nor accompanying moon, nor wandering comets. Why should Deity, during the epochs of past eternity, not manifest his Omnipotence in creating worlds and systems ? The telescope has demonstrated that suns and worlds have existed in some parts of the voids of space for millions of years. The telescopic tube, in thus

conducting us back so far in the past, opens up in long vistas brilliant displays of the creating energy and omnipotent power of Him who is of old, from everlasting. The history of the created universe, extending from its earliest beginning through all its stages, would be an object that curiosity would much covet. Of course it will never be obtained in this life. There may, however, be volumes, which in a future and more felicitous condition of existence will be perused with pleasure of a high and holy character. The redeemed in heaven were heard by John in his Apocalyptic vision, in strains of exulting rapture, crying out, "Great and marvelous are thy works, Lord God Almighty!" Yet in this life it is natural to desire to know when the work of creation commenced, how it has progressed, whether it yet be completed, or whether by a series of creating acts in future, the domain of creation may not be enlarged by redeeming portions of space, empty, dark, and waste. No one certainly would be guilty of the sin and folly of limiting the Holy One in the operation of his infinite power.

The sidereal heavens present us with an august and magnificent representation of the power of God. In every direction around us in space, to the zenith, nadir, and to lateral directions, east, west, north, south, in seemingly prodigal profusion,

are found the fixed stars, as they are usually denominated. The shadow of night cast in any direction, will call into splendid visibility innumerable shining orbs, twinkling in native radiance. There seems a wilderness of them extending over interminable tracks of the great inane. Contemplating the imposing scene, there comes over the mind of the astronomer a feeling analogous to the bewildering amazement, and that sense of the boundless and unlimited, felt by the untutored savage of our own continent, on reflecting on those vast primæval forests in which he was born and nurtured, and out of which neither his mind nor body has ever strayed. Yet the great heavens surrounding us have been found to have definite form. This idea, when it first dawns upon the soul, produces a most astonishing sensation. That which was deemed infinite is found to possess shape, and to be limited. The telescope, by a series of soundings and guagings, made this wonderful discovery. The form of the system of stars in which we are located, which was once confidently believed to be the whole universe, has been ascertained to be that of a ring. The nocturnal firmament, blazing with innumerable suns, impresses our minds with the idea of vast and unlimited power. When this view is enlarged by the telescope, the same idea proportionably enlarges. But when those myriads of orbs

are found to have shape and limit, and when out beyond in the voids of space, innumerable other systems of stars, as great, and in many instances far greater, are found, than the one in which we are located, then the idea of Omnipotence in all its fulness dawns upon the soul. Then looking up through all these assemblages of created systems, to Him who created them, we are ready to exclaim with rapture and devotional feelings : —

“Father of all! in every age,
In every clime adored,
By saint, by savage, and by sage,
Jehovah, Jove, or Lord!”

“Thou great, first Cause! least understood :—

To thee, whose temple is all space,
Whose altar earth, sea, and skies;
One chorus let all beings raise,
All nature's incense rise.”

Near the bright star in the “Harp,” is a star of an elongated form, which under the telescope divides into two parts; each part under a higher power separates into distinct portions. So that four stars burst as by magical power, under telescopic vision, from that which, to the unassisted eye, seemed but one. This proves to be a four-fold group. There are binary, treble, and quadruple multiple stars. These form separate systems within a greater system. One peculiarity of these as-

sociated stars or systems is that they revolve around each other. Their motions have been distinctly detected; in many instances the elements of their orbits determined. In the four-fold group referred to near "Alpha Lyra," there is a mutual revolution. There is something in this imposing and sublime; four suns, each as large as ours, or larger, mutually revolving about each other in enormous orbits of long periods. It is computed that it requires a million of years to accomplish one combined revolution. Taking this one group as a type of this class of stars, what displays have we in those gorgeous fields of space of the Omnipotence of Deity! Not only has motion been detected among these systems, but many single stars are found also to be darting through space. There is every reason to believe that all of what are termed "fixed" stars, are in rapid motion. The eighty or one hundred millions of stars composing our astral system, are all, doubtless, in motion, complex, varied, and uniform. Even our astral system, the annular form of which is marked out by "the solar walk or milky way," stupendous as it may be, with all its restless throng of activities, is doubtless moving in solemn majesty around some unknown centre, still suggesting other and more astonishing movements. Mutations of this august nature fail not to make an overpowering impression on the human mind

in favor of the omnipotent Hand of Him whose presence and glory, invisible to mortal vision, lie far beyond these energies and activities.

There is a fact taught in revelation, and intimately connected both with the science of astronomy and the Omnipotence of Deity, to which I wish now to call attention.

It is the final conflagration.

This fearful catastrophe is alluded to in various parts of the sacred volume. But Peter, in his Second General Epistle, teaches it distinctly and emphatically. Says he, "But the day of the Lord will come as a thief in the night; in the which the heavens shall pass away with a great noise, and the elements shall melt with fervent heat, the earth also, and the works that are therein, shall be burned up. . . . Looking for and hasting unto the coming of the day of God, wherein the heavens being on fire shall be dissolved, and the elements shall melt with fervent heat. Nevertheless, we, according to his promise, look for new heavens and a new earth, wherein dwelleth righteousness."

I deem it important, both in a theological and scientific point of view, that we have precise ideas of the extent and design of the conflagration.

What will be the extent of this great catastrophe? Will the earth be burned to a cinder, be

annihilated, and be blotted out of the solar system? There are some scriptures which, taken out of their connection, would seem to favor the idea of total annihilation in the general conflagration. By wresting passages of holy writ from their relationships, and regarding them as isolated, or giving them a totally different application from the one intended by the inspired writers, we may make them mean anything we choose. The honest aim of every reader of the bible should be, in interpreting the sacred volume, to try to ascertain what was the idea in the mind of the writer when the passage was penned. This can only be done by regarding the sacred volume as a unit;—that it teaches one great system of divine truth, embracing various parts, all of which have a due relation to each other. Hence the necessity, by comparison, of making one part the interpreter of the other. By this mode of investigation, with due reliance on heavenly wisdom, and the illumination of the Holy Spirit, we shall not, in an honest and holy search for truth, be misled. Adopting this rule, we shall reject the idea of the annihilation of the globe on which we live. For the apostle speaks of “a new heaven and a new earth.” By the new heavens, we are to understand the circumambient atmosphere, and probably the adjacent regions of space. The new earth is spoken of as subserving

a definite end ;—being the abode of righteousness. So that instead of the conflagration being designed to annihilate the earth, the object was to transform, to purify, and to adorn it, so as to suit it for the abode of a higher order of life than is now found on it.

We have no authority from the sacred volume, or from the analogies of nature, to affirm that one particle of matter ever has been destroyed or ever will be. Deity makes nothing in vain; he is not like man that he would change his plans. No world called into existence will ever be spoken into nonentity. Change is the law and nature of matter, but these changes instead of tending to its destruction, indicate its perfection. The extinction of the earth would derange the whole solar system, making of it one general ruin. If the solar system were blotted out of existence, the great astral system, doubtless, would be fatally deranged; the ruinous influence might extend to all astral systems. In reference to the created universe, we may in truth adopt the sentiment of the poet;

“All are but parts of one stupendous whole.”

We may safely say that the annihilation of any one orb of space implies the destruction of the entire fabric of creation. Who would suppose that the all-benevolent Creator would reduce to a desert,

a blank, a chaos, that glorious material structure, which in all its vastness constitutes a *word* expressive of his glorious character ?

The design of the conflagration may be learned from the sacred volume. There are two great catastrophes therein referred to in relation to our planet—the deluge and the conflagration. The former had reference to a moral end—it was emblematic, baptismal regeneration. The latter points to similar, though, in nature, higher moral ends. If the former have an analogy to a regenerating act, the latter has to the more glorious event of the resurrection. The earth will certainly undergo a transformation highly analogous to that which will mark the raised bodies of the dead. The one, however, will be a change of the human body ; the other, the globe on which we live. The deluge, regeneration, the resurrection of the human body, and the conflagration, are important incidents in the redemption scheme, as revealed in the sacred scriptures. So intimate the connection, and so beautiful the harmony, between the moral and the physical world !

As to the ways and means, or the agents, by which the earth's great catastrophe may be effected, there are a great variety within the control of the Omnipotence of Deity. Indeed, infinite power, as we can readily conceive, could call any agencies, or

any amount of them, into existence sufficient and adequate to accomplish this or any other object of his council. He, by his word, all-powerful, could, without the intervention of secondary causes, accomplish whatever his wisdom would prompt him to. But he operates by law and order. Both in the physical and moral world he works by means, agents, and instruments. The great event in question, doubtless, will be effected by secondary causes ; and this will be performed by his will, just as much as though no secondary causes intervened between the mandate emanating from him and the event to be accomplished. The thoroughly versed student in nature sees the Hand of God in every cause and every effect, in every change and every event. The oxygen and nitrogen composing the atmosphere, by being slightly changed in their relative proportions, would be amply adequate for the purpose—producing a conflagration which would be visible to the remote bodies of the solar system ; compared with which, the burning of Rome, or Moscow, or the firing of a prairie or a great forest would be as the light of a taper or glow-worm to the radiance of the sun. Geological science justifies us in the belief that the whole interior of the globe is a vast sea of fire ; and that volcanoes are safety-valves communicating with that internal molten mass. Here, then, are abundant resources

for the great catastrophe which the sacred volume assures us awaits the destiny of our planet. It has long been a hypothesis that the same event might be effected by one of the larger comets of our system, in its perihelion passage becoming intensely heated, and then sweeping with its enormous train over the globe, which, according to the supposition (for it can be regarded in no higher light) a conflagration would commence in the atmosphere, on the continents and islands, beginning with cities and forests, and then, by decomposing the elements of the water, communicate to the great ocean. Remarks of this nature might be extended much farther; these, however, are deemed sufficient. The Omnipotence of Deity displayed in all the works of creation, and revealed in the sacred scriptures, is warrant amply sufficient for the accomplishment of the great event in question, in due and appropriate manner.

There are certain phenomena in the physical universe which would seem to indicate a great change on the globe in future. Many stars have vanished from the heavens, and have never again been found. In some instances, stars have suddenly appeared, shone out with a remarkable brilliancy, and then have disappeared. Remarks Mrs. Somerville, in her very learned and profound work on the Connection of the Physical Sciences: "In 1762

a star was discovered in Cassiopeia, which rapidly increased in brightness till it even surpassed that of Jupiter; it then gradually diminished in splendor, and having exhibited all the variety of tints that indicate the changes of combustion, vanished, sixteen months after its discovery, without altering its position. It is impossible to imagine anything more tremendous than a conflagration that could be visible at such a distance."

Change is not only the law which governs the planet on which we live, but it extends to the whole solar system. Nothing save the great Creator, and the laws which he framed, and which govern matter, is to be regarded as fixed, permanent, and immutable. Change has a wide and far-reaching dominion. The sublime architecture of the solar system is subject to marvelous mutations. Enk's comet has demonstrated the fact of the existence of an interplanetary ether. This ether must of necessity oppose a resistance to the orbital motion of the bodies of the solar system, diminishing their centrifugal force, and by this means, after the lapse of long periods, causing them to fall into the sun. It may be regarded as certain, that ultimately, however distant the epoch may be, all the bodies of the solar system—comet, planet, and satellite—will be thrown in one huge mass on the surface of the sun. May not the present solar system have been elimi-

nated from the wreck and ruins of a solar system which had an existence before the present one? Have we not a right from analogies to expect that when the present solar system shall have been made a heap of ruins and rubbish, that under the operation of great laws, doing the bidding of the all-powerful Creator, that a new system will emerge out of the old one, into splendid existence, furnishing the abode of life, happiness, and intelligence? These stupendous evolutions, whose slow and solemn steps seem to occupy eternities, may only be to the Divine Being as the unfolding of a rose before mortal vision.*

* There has been, in the foregoing sermon, allusion made to the relation of the science of Geology to the teaching of the Sacred Scriptures. The Christian world has been much and needlessly alarmed as to the alleged discrepancy of that science and many parts of the Bible; but especially the writings of Moses. The Bible is true: so is Geology. They CAN be harmonized. The writer has delivered a series of sermons in relation to the subject. The sermons in question have been received with favor from the pulpit. It is the intention at a future period, life being prolonged, to write them out and publish them. Should the sermons on Astronomy meet with a favorable reception, this will be done the sooner, and with the greater pleasure.



S E R M O N I I I .

WISDOM OF DEITY.

"Oh, the depth of the riches both of the wisdom and knowledge of God!
How unsearchable are his judgments, and his ways past finding out!"—
ROMANS xi: 33.

ONE of the natural traits in the human mind is to refer effects to causes. This is common in all ages and conditions of life. Even the *child* is troublesome in making inquiries, as to the cause of whatever comes before its observation. It seems the nature of the mind, imparted in its original creation, to trace appearances and occurrences to their origin and cause, and to find out an explanation of that cause. Any of you determine a man's character by his actions. A series of imprudent actions will induce any one to say of him who committed them, that he is imprudent. This is true in cases where the man has not been seen. A man living in Asia can be thus judged of, with precision and accuracy, by one living in the United States. From •

the actions of another you may determine whether he be kindly or ill-disposed to you. Pious deeds prove the character of the Christian. There was a man in the gospel who sowed good seed in his field, the servants came and told him that tares had sprung up also; he inferred instantly that an enemy had sowed the tares, though the act of the enemy was not seen.

A wise man, a foolish man, an angry man, or a benevolent man, is determined by his actions. The knowledge and talent of an author, or an artist, or a workman, may be determined from the book, painting, or machine. If we thus can determine from his actions, the character and qualities of the mind of an individual, may we not, with equal ease and certainty, infer the character of God from his works? The question thus stated is one, not of theory and speculation, but of experience and actual knowledge. It is one not merely to be examined by the philosopher, but is level to every capacity. The works of God are before our eyes. From these, as from effect to cause, we may ascend to the presence of God. In the text, the apostle is admiring the Wisdom of God in connection with the history of the Jewish nation. As there is a connection between genera and species, so there is a connection between this individual instance of divine wisdom and the numberless displays of it in creation, pro-

vidence, and redemption. Surely the whole of the divine proceeding in reference to the Jews, from the calling of Abraham to the present hour, of the history of that singular people, presents an astonishing display of wisdom. The calling of the father of the faithful, the sojourn of his posterity in Egypt, their peregrinations in the wilderness, their settlement in Canaan, their dispersion and restoration, their complete destruction as a nation after the crucifixion of Christ, and their preservation since that as a distinct people, all declare the glory of God. "O, the depth of the riches, both of the wisdom and knowledge of God! How unsearchable are his judgments, and his ways past finding out!" The whole volume of inspiration abounds in instances of the Wisdom of God. So does every object of creation. Tree, shrub, and flower; man, beast, and insect; sun, star, and globe; each proclaim the Wisdom of Deity. Through nature we may look up to nature's God. Creation is a vast, a huge mirror, in which the Wisdom of God, in full form is lucidly reflected. Every age may see this; every heart should adore it.

The Wisdom of God, the theme of the Apostle's admiration in the text, and one of the natural attributes of the Divine Being, is the topic now presented for illustration and reflection.

The Wisdom of Deity is an attribute in the divine character which furnishes a delightful theme to the contemplative christian, upon which to meditate. Both the moral and physical universe are governed by that glorious Being, revealed in revelation, and manifested in creation. We have undoubted evidence of his governing in both. If we were full of misgivings as to his wisdom in ruling in those great realms, our happiness would be much curtailed; nay, positive misery would ensue. In proportion to the conviction that we have of the divine wisdom will our happiness be. The one will rise and fall with the other; enlarged views in one case will be followed by enlarged enjoyment in the other; meagre views by meagre pleasures. If any one take a voyage over stormy, tempestuous seas, or travel through an unknown and dangerous country, it would be necessary to have an experienced pilot, or an intelligent guide. In sickness, when the frame is visited by complicated and dire maladies, the scientific and skillful physician is necessary. Living under a moral administration, where actions, good or bad, are followed by inevitable consequences, how consoling the reflection that an all-wise Being is the ruler thereof! Possessed of a physical nature, allied to the physical universe, being a part of it, and having a home in it, how pleasing the reflection that God, endowed

with infinite wisdom, governs and watches over it. Our confidence leans in reposing trust on the perfect wisdom of the Father of all created things. This attribute is to our affections as the elm or oak to the vine. The divine wisdom, whether viewed in relation to natural theology, the redemption of the human family by a mediator, or that providential government so dear to all, is of equal importance. The contemplation of a theme of such interest, viewed from any point or in any light, cannot fail to be a source of highest profit. Those brilliant displays of it, seen in the immeasurable voids of space, lighted up by the science of astronomy, can make none other than a grand and imposing impression on intelligent piety.

The spheroidal form of the earth on which we live, together with all the planets of the solar system, duly considered, proclaims the Wisdom of God.

A fluid mass of matter, of uniform destiny, the particles of which mutually gravitate to each other, will assume the form of a sphere, when at rest. Such a mass, when rotating, will bulge at the equator and flatten at the poles. It has been satisfactorily demonstrated that the earth is flattened at the poles. The equatorial diameter of the globe being 7,924 miles; the polar diameter 7,908; there

being a difference of twenty-six miles. Newton inferred that it was originally in a fluid state. The recent discoveries of geological science have confirmed this theory. The original fluidity of the earth can have no further bearing on the topic of discourse, than merely pointing to the probable mode of creation, observed by the great Architect, in bringing the universe to its present improved state, under the operation of laws doing the bidding of his will.

Whether we regard the earth, full formed, perfect, and as we now behold it, as springing out of chaos in obedience to the omnipotent fiat; or as by slow degrees, as just indicated, taking on its present form; in either mode the Wisdom of Deity is alike conspicuous. Its spheroidal form stands out before us among the demonstrated facts of Astronomy. Before, however, pointing out the peculiar advantages therefrom resulting, it may be satisfactory to allude to the facts which led to the great discovery. Experiment has shown that the second's pendulum, which vibrates 86,400 times in a mean day at the equator, will do the same at every point on the earth's surface, if its length be increased progressively, to the pole, as in proportion to the square of the sine of the latitude. The mutation of the earth's axis and the precession of the equinoxes being occasioned by the action of the sun and moon on the

protuberant matter of the equator of the earth, show that there is a compression at the poles. In traveling from the poles to the equator there is a regular decrease of the gravitating force. These facts, in connection with others which might be mentioned, prove that the earth is not a perfect sphere, but, being flattened at the poles, presents somewhat the appearance, to use a common object of representation, of an orange. This discovery was made in the seventeenth century. Like many others of a valuable character in science, it was made from trifling and almost accidental occurrences. "The variation in the length of the pendulum was first remarked by Richter, in 1672, while observing transits of the fixed stars across the meridian at Cayenne, about five degrees north of the equator." His clock not keeping correct time, he found that it lost two minutes and twenty-eight seconds every day. Returning to Europe and repeating the experiments, he found that at Paris the variation continued to exist. These facts being communicated to Sir Isaac Newton, without leaving his arm-chair, it is said, he determined the form of the earth, as now known to exist. This was one of the most brilliant triumphs of genius that the world ever witnessed. Observations made afterwards confirmed the truth of the theory of the illustrious Englishman.

Were the globe a perfect sphere at rest, the waters of the ocean, from gravity, would equally extend all around it. But such a globe turning on its axis, would cause the waters to rush to the equator, submerging all that part of the globe. Just as water will run down hill, so is there a constant tendency of the oceans to flow toward the poles, counteracting the tendency of the earth's motion to cause an excessive and bulging accumulation of that element at the equatorial regions. This provision in the structure of our planet prevents large and valuable regions of country from being submerged. Its spheroidal form, then, evidently has an important and designed relation to its motion on its axis. This relationship in a signal manner evinces the Wisdom of Deity. All the planets of the solar system are found to be compressed at their poles. It is likewise ascertained that they all not only rotate, but it has been discovered that the period of their rotation varies—some in longer, and others in shorter time. Those rotating in shorter periods—such, for instance, as Jupiter, are flattened more at the poles. Jupiter moves on its axis with astonishing rapidity—occupying not so much as half the time which the earth does in making a period. The former moving at the rate of 28,000 miles per hour, the latter at the rate of 1,000—the former moving farther in one

hour in its rotatory motion than the latter does in twenty-four hours. Jupiter has a greater velocity on its axis than any planet in our system. It is likewise more compressed at the poles. The proportion subsisting between its velocity of rotation and its compression at the poles, indicates adaptation and contrivance. Doubtless, thereby the most disastrous consequences are prevented: the equatorial regions of that magnificent world are by this provision saved from being completely submerged. Every planet in the solar system, in its spheroidal form has stamped upon it the seal of divine wisdom. As small and seemingly insignificant occurrences and phenomena have often led to some of the grandest discoveries, so apparently accidental properties connected with the orbs of space point to the skill and contrivance of that august Being whose wisdom is radiant in every sun, and is embodied in all worlds. Even as the infinite perfections of Jehovah, veiled and incarnate in the humanity of the Son of Man, sometimes shone out with resplendent lustre, amazing, delighting, and filling all with divine admiration, while sympathy and compassion were shed upon forms of suffering and misery—so, in astronomical science, in small modifications of the forms of worlds or the shapes of their orbits, there come forth radiant emanations from infinite wisdom, breaking with lustre on the soul

—reminding us of the sunlight breaking through the key-hole into a dark room, or through the rents and crevices of evening clouds, sweeping far across the concave of heaven in long, and brilliant, and graceful streamers.

From the great law of gravity, we may deduce facts of a nature to illustrate the Wisdom of Deity.

Job says, concerning the power of God, "He stretcheth out the north over the empty place, and hangeth the earth upon nothing." Job, in respect to a knowledge of astronomy, was greatly in advance of that philosophy which called in the aid of the elephant and the tortoise on which to locate the globe. The earth and all the orbs revealed in astronomy are hung out in the voids of infinite space. In respect to space there is no up nor down, no east nor west, no north nor south. The surface of the globe determines our ideas of upward and downward directions—the fixity of the poles, of east, west, north, and south. Point in what direction we may, we are but pointing into the realms of space. All is space—above, below, all around—space knows no height nor depth, no length nor breadth. It has not form or shape; it is boundless, endless, formless. Man's contracted ideas derived from this little globe are not capable of being

●applied to it. Then how are the bodies of the solar system and all the bodies of space held together? Why do they not fly in lawless confusion, each one antagonist to the other, in a contrary direction? Why do they not, coming from all directions, fall together, forming one stupendous mass, crude and misshapen, of useless rubbish—constituting vast and fearful ruins in the limitless wilderness of untenanted space? Until the days of Sir Isaac Newton, no intelligible answer could be given to these questions. It was reserved for his giant intellect to discover the mysterious, the invisible, the all-powerful agency—an agency constituting something of a representation of the Deity—by which the whole created universe was held together in harmonious and stable unity—every part occupying a due relation to the whole, and the whole a due relation to every part. What an energy, what a power, thus binding all together! All the cables, chains, cords, and bands with which human beings are familiar, seem toys and playthings compared to this! Verily, it is a type of the Omnipotent—an emanation from him! Surely, it is a living eternal mandate of his will!

Any mass of matter, such, for instance, as a stone, elevated to a height and suddenly abandoned, will fall to the earth in a perpendicular line. Why does it take that direction? Why not take some

other—even an opposite direction? It may be remarked that there are fixed laws governing falling bodies. These laws indicate a mysterious sympathy between the falling body and the earth. That sympathy is connected with that mysterious, invisible agency which binds in harmony the whole frame of created orbs. The laws referred to as governing falling bodies, were known before the time of Newton. The fact that the moon revolved around the earth, was also known. But what force, agency, or power held it in its orbit, was the question. The scientific world was much agitated in perplexing inquiries and discussions as to the cause of the lunar retention in its orbit. Sir Isaac Newton demonstrated that the earth's satellite was governed in its movement in its orbit by the same laws which regulate a falling stone. This, with the assumption that an original impulse was given it, explained the phenomena of its orbital motion. The story of the falling apple is a magnificent story. It did not first suggest to the mind of the great philosopher the idea of gravity. Successive discoveries and successive investigations had started the question in the mind of many, as to the probable existence of such a force or power. Newton demonstrated that which hundreds had conjectured. In the progress of human discoveries one intellect is not capable of extending its investigations

beyond a certain limit. Luther, in the Reformation, but perfected that which great and good spirits before him had commenced. Franklin, by experiment, demonstrated the identity of electricity and lightning; which identity had long been a subject of conjecture. Fulton did no more than apply steam to navigation; the expansive power of steam and the nature of the steam-engine being previously known. Many of the laws governing electricity were known before Morse set the telegraph in motion. The discovery of great truths is slow, gradual, progressive; they dawn by degrees on the mind, analogous to the rising of the luminary of day;—first, there is a faint, dim, and obscure twilight, growing brighter and brighter. As some one ascending a high eminence, such as a hill or tower, beholds the sun first, so some great intellect ascending to an eminence far above the mass, first obtains a view of new truths; this first view of rising truths is called discovery and invention. The mode in which discoveries are made in science is very much like the manner in which the gospel was revealed to the world. So that we may conclude, the gradual manner in which the gospel was revealed was wisely adapted to the laws governing the human mind. Such is one among innumerable instances of the connection of science and religion.

The discovery of the law of gravity gave a new impulse to the study of the physical sciences. It opened up a new view to the created universe, revealing wonderful displays of the Wisdom of Deity, which before had not been seen, or even conjectured in the wildest dreams of imagination. Columbus discovered a new world; the discovery of the law of gravity led to the discovery of great astral worlds, lying scattered abroad in the ocean of space. The sun may be regarded as the centre of an attractive force, extending indefinitely in all directions in space. Neptune, the farthest planet in the solar system yet discovered, at a distance of three thousand millions of miles, describing an enormous orbit, is obedient to this central gravitating force. At this distance from the sun, the planets testify the existence of this agency. The comets revolving about the sun in extremely elongated ellipses, many of them extend far beyond the orbit of Neptune, in unexplored, and perhaps in unoccupied regions of space, and in obedience to the gravitating energy emanating from the sun, after a lapse of thousands of years return from their solitary wanderings—so that from the sun there goes forth a gravitating power extending over an enormous area. The stars fixed, as they are usually termed, are all suns—many of them much larger than our sun. From analogy of a most sat-

isfactory kind, they all send forth an energy of gravity, as our central luminary does. Nay, Newton demonstrated that every particle of matter attracts every other particle of matter in the universe, with a force bearing a proportion to mass and distance. Then, wherever, in the concave of heaven, or in the profundities of space, there is seen, however apparently small, a star to twinkle, there is a centre from which radiates a marvelous power of efficacy sufficient to bind a system of worlds together in harmonious unity. The globular form of the dew-drop, the hail-stone, and the huge world, alike are due to gravity. Those great astral systems looming from the far distant fields of space, and falling on the astronomer's telescopic vision, filling his mind with amazement and wonder, are found to have something of a globular form. This indicates the action of gravity in those remote regions of the universe. The universality of the law of gravity may be regarded as an inference or deduction, of a reliable kind. Without its agency there would be neither rule, nor law, nor harmony in the physical universe. It, in this part of the dominion of God, answers to the moral law of God in the moral universe. The annulling and abrogating of one would produce a physical, the other a moral, chaos and anarchy. In all cases, the Divine Being operates by laws, both in the physi-

cal and the moral world. Whether we study theology or the physical sciences, we should constantly bear in mind that all is subject to laws—fixed, immutable, wise, and divine. Nature and revelation both combine in declaring the fact that God is a God of order. It has been said that order was heaven's first law. Heaven has no laws which do not tend to order. God is a being of order and perfection—all the laws found in the physical and moral universe are emanations, types, and shadows of himself.

The earth revolves around the sun not in a circular, but in an elliptical orbit. The sun is situated not in the centre, but toward one extremity of this ellipse. The earth being nearer the sun at one point in its orbit than in another, owing to the action of gravity, moves with unequal velocity; faster when nearer the central luminary—when farther off, slower. An imaginary line; or a real one, if the illustration be better; extending from the sun to the earth, would pass over equal areas in equal time. The result of this is, that the globe, in all parts of its orbit, receives an equal amount of light and heat. In reference to this subject, a distinguished writer holds the following language: "Now, it happens that in consequence of the laws of the planetary motions—discovered by Kepler, and explained by Newton—when the earth is most

remote from the sun its velocity is least, and consequently the hourly changes of longitude of the sun will be proportionally less. Thus it appears that what the heating power loses by augmented distance it gains by diminished velocity: and again, when the earth is nearest to the sun, what it gains by diminished distance, it loses by increased speed. There is thus a complete compensation produced in the heating effect of the sun, by the diminished velocity of the earth which accompanies its increased distance." Such skill in adaptation, and such compensations, proclaim the Wisdom of the great Architect of the solar system.

Every particle of matter attracts every other, with an efficacy decreasing according to their square of the increased distance. The square of a number is that number multiplied by itself. The square of two being four; of three, nine; of four, sixteen. If the earth were two, instead of one, hundred millions of miles from the sun, it would then be attracted by the sun by a force four times less than it is at present. This regular decrease of gravity continues with undeviating uniformity, extending to the farthest body in the solar system. The larger planets are farthest from the sun; the smaller ones, nearest. Owing to this fact, the stability of the system is preserved. If there were no

decrease of the gravitating force, as we travel from the sun, Jupiter, if the same size as Mercury, would gravitate to the sun with equal force: with its present size, it would be attracted with an energy proportioned to its mass. And so of all the other larger planets. In this, divine skill is most conspicuous. There is another feature connected with the law of gravity deserving especial notice in this connection. Every particle of matter attracts every other particle of matter with a force bearing a proportion to the mass. The earth and a feather mutually attract each other according to this rule. The power of gravity on the different bodies of the solar system will vary as their size and density differ. A man placed on Jupiter or Saturn, could scarce drag one foot after the other; on one of the asteroids he would feel so light that he could leap an enormous height; on the sun he could no more than crawl, such would be the crushing force of gravity on his frame. The oak of the mountain, transplanted to the sun, would be crushed to the surface. There is a wise adaptation between the strength of every organism, both animal and vegetable, and the gravitating force of the globe on which they live and exist. If there be forms of life, animal and vegetable, on the various orbs of space, these forms of life, in the strength of their organic structure, bear a nice proportion to the gravitating force of those orbs. The elephant,

the horse, man, the deer, the gazelle; the quail, the sparrow, the beetle, the crawling insect; the cedar of Lebanon, the lily, the rose, and the spire of grass, all, in their organic structure, are adapted in their strength to the power of gravity existing in the earth. Nay, that microscopic world of plants and animals, never seen by the unassisted eye, is subject to the same laws. What infinite skill and contrivance are here revealed! The great globe on which I tread, in its entire mass, bears a proportion to my organic structure; and, in turn, I bear a nice relationship to the whole globe. This thought fills me with amazement. But when I consider that the smallest form of life, whether crawling insect scarcely visible, or the frail vegetable form of life, bears an exact proportion to the great globe; and, in turn, the entire mass of the globe to it, I am confounded and overwhelmed with astonishment. The bullrush bending in every breeze, the aspen leaf trembling in every zephyr, the rose nodding on its flower-stalk, and the lily, the emblem of frailty, waving to and fro, all, in structure, bear a proportion to that gravitating force of the earth which holds the moon in its orbit, extends to the sun, and is seen and felt in the perturbations of all the planets of our system. When the frail flower and the minute crawling insect show such marks of the wisdom and care of the great Parent of all, in suiting

them to their abode and home on this earth, how much more will man, the top, and crest, and perfection of creation, share in the same paternal care and solitude? Truly we may regard gravity as a sublime telegraphic communication connecting us with that august Being whose abode lies far beyond the reach of mortal sight and investigation. How wonderful, how mysterious, the agency of gravity! It may be regarded as the animating principle, the intellect, and the very soul and spirit of the vast physical universe. Regarding gravity in this light, the vast created universe presents itself to the mind, sending forth from its mighty profundities, echoes significant of Him whose invisibility lies far beyond human ken.

"I have seen

A curious child, that dwelt upon a tract
Of inland ground, applying to his ear
The convolutions of a smooth-lipped shell,
To which, in silence hushed, his very soul
Listened intently; and his countenance soon
Brightened with joy; for, murmuring from within
Were heard sonorous cadences; whereby
To his belief the monitor expressed
Mysterious union with its native sea;—
E'en such a shell the universe itself
Is to the ear of FAITH."

It may not be inappropriate, at this place, to inquire into the relation which the laws of nature sustain to Deity. The question whether the laws of nature be a modification or attribute of

matter, or whether they have an independent existence, having been called into being by the all-wise Creator, and superadded to matter, will not here be discussed. Those laws have a real existence ; they develop themselves as clearly as mind does. The mode of their existence, if it could be determined, is not a question of importance. Their existence and their astonishing results are before us. There are two extremes in relation to the laws of nature which should be avoided. The one is a Pantheistic view, the other a material view, regarding those laws as eternal—something apart and distinct from Deity, having an existence within themselves. The first would, during all time, make the Deity continuously operate in every change and phenomena. These phenomena and changes would, according to this theory, have no existence apart from the Divine Being. This is a fitful mode of operation. It is not according to the mode in which he operates in the great work of redemption. A revelation was made, recorded, and sealed up, and nothing was to be added to it or taken from it. The will of Deity was not made to every man in every country and in all ages, but to certain chosen men. Here was a fixed, uniform plan. The atonement was made by Christ once for all dying on the cross, and that for the whole human race. Each man did not have a separate atonement, by a separate death of the Re-

deemer made for him: there was not an atonement made in every age. God, in nature and in revelation, acts by rule, plan, and general laws; not by a partial, fitful, irregular procedure. God is nature, and nature is God, is the doctrine of Pantheism. If God is operating immediately and directly in every change of the physical universe, it is very difficult to separate him from those changes. The second view of the subject would substitute the laws of nature for the Divine Being. Such a view would banish the great and glorious Creator from his own realms, and dethrone and depose him. The physical universe has no existence apart from Deity; that is, he created it; so the laws of nature were called into existence by his creating fiat. Human beings and angels were created, endowed with intelligence, placed in a moral government and under wise laws, and then left to act for themselves, with the assurance that good actions would be rewarded, and bad ones punished. The world was called into existence, having a certain physical nature and capacity; was subjected to physical laws, and then was left to accomplish the end and object of the Creator. In both cases, it will be borne in mind that the Creator extends over them a supervision, a watchful care—an all-superintending providence. There exists the relation of ruler, governor, and sovereign, between that Creator and the

moral and physical universe He governs in one department of this dominion, or the universe, by the moral law revealed in the sacred scriptures; in the other, by the law of gravity. The law of gravity sustains a relation to the physical universe analogous to the relation sustained by the moral law to the moral universe. The former is unintelligent, and not endowed with life and material: the law of gravity is beautifully adapted to this. The latter is moral, accountable, and intelligent: to this the moral law is adapted. The former may be regarded as emanating from the natural attributes of Deity; the latter, from his moral attributes. Both may be regarded as appointed agents, accomplishing great ends connected with the governmental purposes of Deity. They may both, recurring to the original meaning of the word, be in some sort regarded as angels; suggesting the idea of those seven spirits seen in the Apocalypse, standing before the divine throne, or that angel standing in the sun.

On the one hand, the laws of nature are to be regarded as having no existence apart from the great Creator; on the other, they should be regarded as being appointed and designed to have a distinct existence, and in the light of agents intended to accomplish great ends and results. Whatever is accomplished by these laws in their uniform and inva-

riable operation, is in fact and effect, done and performed by Deity himself. It is not our part to quarrel with the mode in which creation goes on. Whether it be effected by uniform plan, or under the operation of laws, or in any other mode, is a question of no consideration. The fact is before us, legible on every page of revelation and nature, that God created all things. He had a right to adopt his own plan: mortals have nothing to do with this. There is a sort of fitful, irregular idea of creation abroad in the world, which would subject the divine mind to no rule, law, or plan; but each creating act would be independent of all others; presenting an isolated, capricious mode, better suited to the fitful, wayward mood of a child, than to an all-wise Intelligence, presiding over all things. A civil law necessarily implies a law-maker. There are laws which have long had an existence, which suggest to us Solon, Moses, or Numa Pompilius. The laws of nature suggest a great and glorious law-maker. While the existence of these laws lead, by a light not uncertain and dim, to the conclusion of the existence of a law-maker, their adaptation to the material creation in such a manner as to effect most important definite results, indicates clearly the wisdom of that law-maker. It has long been the fashion in Natural Theology to draw arguments from man's phys-

ical structure to prove the existence of Deity. The mind affords arguments of a higher and more satisfactory character of that fact. The mental world affords more evidence of divine skill, contrivance, and adaptation than the material world. The existence, forms, and motions of the bodies of space are relied upon by many, as evidence sufficiently satisfactory to prove the existence and character of Deity. The laws of nature, intangible and incomprehensible as they are, furnish a higher and more satisfactory class of arguments in relation to the same subject. The laws of nature sustain a very important relation to that providential government revealed in the sacred scriptures, and which is so dear to every true Christian. These laws are so constituted as to bring about precise and definite results. Man is adapted to these laws and the physical universe. In the divine wisdom, this double relationship, the laws of nature to man and man to their operation, produces some of the most beautiful displays of divine providence. A general law results in a general providence, a special law in a special providence. In order to a correct understanding of this pleasing subject, it is necessary to have correct views of the physical universe and the moral universe, in their mutual relation to each other. This, however, is not the place to enter into detail on this topic.

The laws of nature sustain a most important relationship to the God of the Bible. Those who divorce them in their studies, separate that which God himself has joined together. Let no one be so much disposed to have things in the government of God, moral or physical, as he desires them, as not to accept of them in an humble frame of mind, as they really exist. The spirit and disposition of the little child characterizes those who are esteemed worthy to enter into the kingdom of God. That reverent child-like spirit is just as necessary in approaching the kingdom of nature as the kingdom of grace. Happy is he who comes with a filial spirit, and with a filial awe, and knocks at the door of either, and finds favor and admission!

A consideration of the Copernican system of astronomy, in contrast to the Ptolemaic, will afford us a display of the Wisdom of Deity.

A general idea prevailed in remote antiquity, that the earth was an extended flat surface. There are some allusions to this in the Old Testament. Homer evidently entertained the same idea: for in the Odyssey he conducts his hero, Ulysses, to the verge of encompassing darkness, where he causes him to descend into the spirit world. At a more modern period of antiquity, a very different, and a more advanced idea of astronomy prevailed. The earth

was regarded as a sphere, but fixed and stationary; and all the planets, the sun, and the stars, were supposed to revolve around it. This system was perfected during the reigns of Adrian and Antonine, at Rome, by Hipparchus, born in Bythnia, renowned for his numerous and accurate observations in Astronomy, and Ptolemy, of Egypt, the first scholar and best writer of his country. It owed its perfection as much, and, all things considered, more, to the former astronomer than to the latter; yet the system, from that hour to the present has been known by the name of Ptolemaic. It must be borne in mind, however, that this system was perfected, not originated, by the distinguished names just mentioned. All the Greek philosophers, except the Pythagoreans, had, before Ptolemy's day, embraced his system. They did not understand it and explain it as much in detail as he did. Aristotle wielded his eloquent pen against the motion of the earth. His authority being supreme — outweighing argument, reason, and fact — the earth was regarded as stationary, and at rest, throughout Europe, till the sixteenth century. Such is the influence one man often exerts over large portions of the human race. Nicolas Copernicus, born at Thorn, in Polish-Prussia, in 1472, taking up the theory of the earth which had been started by the Pythagorean philosophers, pro-

pounded, explained, and to some degree of satisfaction, demonstrated it. Galileo, Kepler, Newton, Herschel, and Laplace, may be said to have perfected—at least, to have extended and improved—what the Polish clergyman had commenced.

The Copernican, or present system of astronomy regards the sun as the center of the solar system; the earth and all the bodies of this system as revolving around the sun. The Ptolemaic system regarded the earth as stationary and the center of the universe; the sun, moon, planets, and fixed stars, many of them enormously larger than it, as revolving about it. In order to reconcile difficulties, cycles, epicycles, crystal spheres, and the most complicated and clumsy machinery were resorted to. How strange it is that human beings will resort to so much more ingenuity to explain and bolster up a false theory, than they will use industry to make observations and collect facts to explain that which is true! The Ptolemaic theory was an idea which may be regarded as an exponent of the times. It was narrow, crude, and bungling. Such was the nature of the astronomical knowledge which then prevailed. The Copernican view of the solar system served as a key to explain the entire phenomena of astronomy. How simple, how worthy the wisdom of its Author, the present system of astronomy!

"Oh, how unlike the complex works of man,
Heaven's easy, artless, unencumbered plan."

There is something about the Ptolemaic system of astronomy characteristic of man's works; it is man's universe; there is the appearance of the labored, the complicated, the complex, the tortuous about it. There is seen in the present system of astronomy a God-like simplicity which eloquently proclaims the Wisdom of the Divine Being. Every orb of space, every revolution, whether orbital or rotary, every perturbation speaks of the same great fact. Indeed the Divine Wisdom is conspicuous in every object of creation, from the dew-drop on the tremulous petal of the rose, an orb of pearl, to the magnificent Jupiter, thirteen or fourteen hundred times larger than the earth. From the enormous rings of Saturn, two hundred thousand miles in diameter, to the filaments that clasp and re-clasp the feathers of a humming-bird's wings, it is conspicuous. It is seen ranging in a thousand forms and varying shades, extending from those cryptogamous plants called rust on wheat, mould on furniture or books in damp rooms, or green scum on stagnant water, to the oak of the mountains, or the palm of the tropics. It is visible in those mausoleums of former epochs, extending from the trilobite of the Siberian formation, of the huge saurian of the secondary, or the monstrous mastodon of

the tertiary period, in all the countless forms of fossil geology.

"How sweet to muse upon His skill displayed,
Infinite skill, in all that he has made;
To trace in nature most minute design,
The signature and stamp of power divine;
Contrivance exquisite, expressed with ease,
Where unassisted sight no beauty sees;
The shapely limb, and lubricated joint,
Within the small dimensions of a point;
Muscle and nerve miraculously spun;
His mighty work, who speaks and it is done;
The invisible in things scarce seem revealed,
To whom an atom is an ample field."

The use here made of Astronomical science is not intended in any sense to do away with the necessity of a revelation.

It is the part of blind infidelity to reject revelation, contending that the works of nature sufficiently declare the will of Deity. It is the part of narrow religious bigotry, which never looks a cubit beyond its own stand-point, to reject totally the works of creation with all their sublime teaching, as impious and profane. Either of these characters are guilty of an unpardonable folly. The same glorious Being who created the great frame of things, has revealed himself to his intelligent creatures. The marks are as clear and distinct that the Bible came from God, as the world on which we live was fashioned by his creating hand. The evidences are as satisfactory that the created

universe emanated from Deity, as that the Bible was inspired by him. The same intolerant, bigoted, sceptical spirit actuates both. It is no uncommon occurrence for directly opposite results to flow from the same cause. Enlightened, intelligent piety rejects both of these extremes; placing a proper estimate on both the sacred scriptures and the works of the Creator's hands. How far the works of creation would serve to give us a knowledge of the existence and character of God and our duty to him, is a question which it would be needless here to agitate. We have both the Bible and the works of creation each performing its part. The one would be incomplete without the other. The scriptures throughout direct us to the objects of creation as evidences of the existence of Deity, and as furnishing illustrations of his perfections and character. The one teaches what the other does not. Their relationship is such as subsists between the law and the gospel. The one is introductory and prefatory to the other. The one contains positive teaching, the other illustration and representation. Both in a religious point of view have their part to perform, and that part is in every sense highly important. All the light, radiating from both, and shed on man's path to the grave and the spirit world, will not make it too bright. All the motives drawn from both to incite to duty,

obedience, gratitude, love, and hope will not be too strong. God's own handiworks devoutly, and reverently, and humbly studied cannot lead us astray from the teachings of his word. Those who reject the lessons taught by the works of the Creator's hand, remind us of the disciples who saw one casting out devils, and because he did not follow them, they forbid him. Christ informed his disciples, by way of rebuking their indiscreet zeal, that those who were not against him were for him. The works of education, which declare the being, power, wisdom, and goodness of God cannot be against him, or against the scriptures, or against Jesus Christ.

The science of astronomy teaches the works of God on a sublime and grand scale. It treats of objects of greater magnitude, variety, and splendor than any other science. These objects of creation have a language, and voice, and speech not to be misunderstood. Says the poet, of the works of creation in relation to the Creator:

*" This gleaming wilderness of suns and worlds
Is an eternal and triumphant hymn,
Chanted by thee unto Thine own great self."*

The music of the spheres, so often alluded to by the ancients, has a real existence; but it is a moral, a religious music; the great, the uncreated, the glorious One is the burden of this song. Astronomi-

cal science may be compared to Mount Tabor, bright with excessive radiance under the glory of the Transfiguration scene; and as on that Mount, Christ, and Moses, and Elias, shone with a radiance more than earthly, so upon the sublime eminence of this science, the scriptures reveal objects in a light which dazzle, enrapture, and confound us, causing the involuntary exclamation to break forth from us, as from Peter, "Lord, it is good for us to be here."

The fixity of the poles of the earth, in connection with the poles of the other planets, marks the Wisdom of Deity.

The eye, on a clear evening directed toward the North, discovers two beautiful clusters of stars having a definite form, of similar shape, but of unequal size; the one called "Ursa Major," the other "Ursa Minor;" the North Star composes one of the stars of the smaller figure, two of the larger ones point to it. The poles of the earth point to this star, known to all as the North Star. The poles of the earth are points where its axis meets its surface. The fixity of the poles is a question of the highest consideration, both in astronomy and in relation to natural theology. The question has been started in science, whether or not the poles of the earth have pointed in a uniform direction in

the heavens during all the past history of the globe. Many have contended that they have changed their direction so as to affect the temperature of the earth, in some places so as to produce an effect on forms of life. The poets have done much to create and perpetuate this theory. Says Milton:

"Some say he bid his angels turn askance
The poles of earth, twice ten degrees and more,
From the sun's axle;—they with labor pushed
Oblique the centric globe."

This view of the poet has found its way into some works on science. Even as respectable authority as Dr. Dick, contends that in consequence of man's sin the position of the poles of the earth was altered, by which means the seasons were affected. The poet could be pardoned for advancing such a sentiment; there is neither excuse nor palliation for the man of science.* For there are no facts, nor analogies, to justify such a conclusion. The globe, by an all wise Creator, was spoken into existence, with a perfect knowledge of all that would occur on it in its entire history. This being the case, it would not be created under conditions which would

* It will be borne in mind that the north pole of the earth is performing a small revolution which requires a great length of time to make a period. The bright star in the Harp will one day be the North Star instead of the star in the tail of Ursa Minor, which is the present North Star. But this change is so small that it does not affect the general assertion of the fixity of the earth's axis.

be necessary to be altered on the occurrence of any event connected with the history of its inhabitants.

In fossil geology it has been found that the remains of tropical plants and animals have been discovered in high northern latitudes. This at first was regarded as evidence that the poles of the earth had changed their position in the heavens so as to bring about this result. But more accurate observations showed that at a former period the earth was under a much higher temperature than at present; and hence the fossil remains of tropical plants and animals are found in a northern latitude, in which no living ones are found in the present day. Thus, while geological and astronomical science harmonize with, they mutually confirm each other. The fixity of the poles of the earth may be regarded as one of the established facts of astronomy, and one indicating the Wisdom of the Creator. Our ideas of East, West, North, and South are derived from the fixity of the poles. The mariner on the sea, and the traveler in the desert and the forest, would have no notion of courses and directions were it not for this. This world would be a labyrinth, and a maze, without a knowledge of the cardinal points. Did the poles of the earth alternately occupy their present position and the position of the equator, the result would be the successive drying up and submerging large tracts of land, as well

as the frequent and sudden change of temperature from tropical to polar intensity. The frequent destruction of life, both animal and vegetable, would be the result; the earth would cease under such conditions to be a suitable abode for man. Did the poles point to the centre of the earth's orbit, and not in the present direction, there would be a twirling appearance given to all objects, confusing and confounding all ideas of course and direction. The wisdom of the great Creator is conspicuous then in the fixity of the poles of the earth. As a needle touched to the loadstone and poised on a pivot, ever afterward, in calm or storm, in wilderness or populous city, points to the pole, so does the pole itself, while the earth turns on its axis, move in its orbital motion, and accompanies the sun in an enormous journey around some unknown centre, points as unerringly to the wisdom of that Being whose hand fashioned and fixed it as it is, as it does to that star known as the "polar star."

In conclusion, how grand the universe as revealed to the telescope! What multiplicity, what magnitude, what splendor of worlds! Vast, illimitable, incomprehensible, the field of space radiant with shining wonders! When the mind fatigued, overlabored, and oppressed, turns away from the contemplation of the vast universe, as revealed to the telescope; then by way of that relief that results

from contrast, it may turn attention to that universe revealed to the microscope—varied, beautiful, and full of wonders. This infinitesimal universe is no less deserving of our attention, and has not less urgent claims on our admiration than its opposite of magnificent wonders. The microscope and the telescope reveal to us the two extremes of the infinite; the one the infinitely great, the other the infinitely minute. The one shows the wisdom of the Creator displayed on a scale grand, imposing, august; the other on a scale, minute, marked with care, and characterized by minutest skill and design. Both teach their lessons of divine instruction. Either constitute a hymn of praise to the Wisdom of the all-wise One. The one in organ tones, full, swelling, and grand; the other in æolian strains, soft, low, and full of melting pathos. Ranging from the infinitely great to the infinitely minute, embracing innumerable forms of matter and of life, the created physical universe, spread out before us like a magnificent panoramic view, presents all shades and varieties, and grand exhibitions of the character and perfections of Him who is the object of our adoration, the source of our joys and hopes, and the life of our life. While the created universe, with swelling rapture, is viewed in all its wonders, in opposite directions, by the telescope and micro-

scope, it in turn may, by the mind trained to high and great thoughts, be grasped, and great as it is, may be turned into a huge, enormous telescope, which, when directed to the character of Deity, will bring out and reveal glorious traits, before unseen and unobserved. An almost infinite variety of new discoveries in the Divine character may be seen through this telescopic vision; farther on and still farther on in the profundities of the Divine character, may be seen rising in successive grandeur new traits and features. Turning this telescopic tube, the minute in all its variety, beauty and loveliness is before us. How great and wonderful the created physical universe! How infinitely more so that august Being seen and reflected in it! Holy, and exalted, and enrapturing are the joys of those pure and redeemed ones, who stand a' out the throne of the Eternal, and without a sense of sin or guilt, without an intervening vail or obscuring cloud, look with filial awe and undimmed vision on that glorious Being, who is the origin, center, and upholder of all created objects, animate or inanimate, material or intelligent.

S E R M O N I V.

BENEVOLENCE OF DEITY.

And Jesus said unto him, Why callest thou me good? There is none good, but one, that is, God.—**MATTHEW x : 18.**

MANOAH said, on one occasion, to his wife, “we shall surely die because we have seen God. But his wife said unto him, If the Lord were pleased to kill us, he would not have received a burnt offering and a meat offering at our hands, neither would he have showed us all these things, nor would as at this time have told us such things as these.” Correctly did the wife of Manoah infer the disposition and purpose of the Divine Being, from his conduct and actions as manifested to herself and husband. The providential dealings of Deity with the human family, together with all his creating acts, are of a nature to convince us of his benevolent purposes. Every created object around us, every display of divine providence, in its adapta-

tion and relation to our happiness, proclaims the benevolent purposes and intentions of that Being who is declared in the text to be good. In redemption, divine benevolence, brilliant and cheering, gives hope and promise, even as that rainbow that appeared to Noah. The wife of Manoah, from the actions of Deity, infers that he is benevolent in his purposes and intentions. This correct knowledge which she has of the divine character has a salutary influence on her piety. Her faith in God is strong, and her confidence unwavering. Thus we see a correct knowledge of the character of God exerts a salutary influence on personal piety, and becomes a source of reliance on the mercy and providence of God. The first, the elementary, the most important style in religious investigation is to have correct knowledge of the character of God. The end and aim of these sermons, viewing the character and perfections of Deity in relation to astronomical science, are to effect this. It is to be hoped that this will be the result to all such as make due improvement of them. The young man, in the text, convinced of the goodness of the Great Teacher, the Master in Israel, comes and inquires what he must do to inherit eternal life. The human heart, clearly convinced of the goodness of God and deeply impressed with the fact, as by a heavenly impulse, gravitates toward the infinitely good One;

and while revolving around him, in obedience, loyalty, and sweet gratitude—not in the sense intended to be conveyed by the captious, satirical, misanthropic poet, but in truth and verity, we may say:

“For me kind nature wakes the genial shower,
Suckles each herb, and spreads out every flower;
Annual for me, the grape, the rose renew
The juice nectareous, and the balmy dew;
For me the mine a thousand treasures brings,
Seas roll to waft me, suns to light me rise;
My footstool earth, my canopy the skies.”

The Goodness of Deity, a topic often presented in the sacred scriptures, and endearing to every devout soul, will constitute the theme of discourse for the present hour.

It will be the object to view the topic of discourse in relation to astronomical science. In this, as in former sermons, such prominent and leading phenomena and facts in astronomy will be selected, explained, and applied to subjects connected with revealed religion, as may be deemed useful. The goodness of the divine Being, which is revealed in the sacred scriptures, is seen stamped, impressed, and daguerreotyped on all the objects of creation. As the lake reflects and mirrors forth the orbs of heaven, that from afar shine upon it, so the perfections of Deity are seen distinctly and beautifully shadowed forth in the face of nature.

In the satellites of the solar system may be seen a brilliant illustration of the Goodness of the Divine Being.

There shines not in the nocturnal firmament a luminary of greater brilliancy, larger apparent size, of more utility to the dwellers of this earth and one exciting more general admiration, than the moon, our satellite, passing through such a pleasing variety of phases, from an almost threadlike and wiry crescent to a gibbous, and then to an orb, round, and large disc; and then, waning through all varieties of change till it again approaches the slender, delicate, crescent form. In all ages this luminary has been an object of universal admiration. In Genesis, it is in reference to the sun, called the lesser light, and was ordained to rule the night, as the sun the day. We are not to regard the moon as really the second orb in size, in the voids of space, but owing to its proximity to us, it appears to be such. Various allusions are made in the sacred scriptures to the moon: it is compared in one connection to the Mosaic dispensation; in another, it is an emblem of the Church. It being so near a neighbor to our planet, in every respect it assumes the highest degree of importance—whether viewed as an object of poetical beauty, of general utility, of religious, emblematic, and suggestive signification, or of scientific regard.

When the *new* moon appears, as all are aware, it is in the west, a short time after the going down of the sun. The observer will notice that it is farther to the east, or as it is frequently termed, higher the next evening at the same time; and so will it appear farther east every succeeding evening till about two weeks, when at the full, it rises in the east at the time the sun is setting in the west. Thus, in this length of time, it has traveled entirely across the concave of heaven in an opposite direction to its apparent motion. After the full it rises nearly an hour later every night, till in two weeks it proceeds an equal distance and appears in the west again as the new moon. Here is, then, a double motion of this luminary—the one from east to west which is only apparent like the daily motion of the sun, resulting from the motion of the earth on its axis, the other real, from west to east. If any one will take a top and pass his finger over it slowly from west to east till he brings it quite around it, he may acquire a rude idea of the motion of the moon around the earth. If the same person will mark a ring on the sand, and take a sling in hand, and while walking around the circle in the sand, throw or whirl the sling about his head, he may have an idea of the motion of the moon about the earth while the latter is revolving about the sun. At an early period of the history of astronomy, this

motion of the moon around the globe was noted. It became an element of computing time ; these changes suggested the idea of weeks ; a full period a month ; and a certain number of these periods a year. It will require but a small effort, and a small degree of observation, to obtain a clear and correct idea of the moon's orbit about the earth ; and as the orbits of all the planets and satellites are in the same plane, that is, in the plane of the sun's equator, a correct idea of all motion, both as to the plane and direction of it, may easily be obtained. The moon, then, in its orbital motion becomes the elementary principles, the alphabet, to astronomical science. As such it assumes no ordinary degree of importance in a scientific point of view. It not only rules the night, but it leads to an explanation of astronomical science. When the theory was started and conjectured from various quarters that gravity held the planets in their orbits, Newton demonstrated that the same laws governing a falling stone held the moon in its orbit. The great mystery, not only of the solar system, which is balanced in the fields of space, but of the whole physical universe in its wonderful coherence, is fully and clearly explained. The Copernican theory of astronomy is both demonstrated and made intelligible. The vast and stupendous created universe stands before the eye of science in all its extension,

parts, and magnificence, in simplicity, and grandeur worthy of its great and august Architect. If the planets Mercury, Venus, and Mars have satellites, they have not yet been discovered. The two former planets being nearer the sun than the one we live upon, we can see some reasons why, in the mechanism of the solar system, there should not be satellites accompanying them around the central orb. For reasons analogous to the cause why a summer night is not as dark as a winter night, there cannot be very profound darkness during the nights of those worlds. Hence, the necessity for satellites is not so great with them as with those planets farther from the sun. Mars being farther from the sun than our planet, is in the greater need of an accompanying satellite. None, as yet, has been discovered in connection with it. It is generally taken for granted, whether justly or not, that it has none. The asteroids, occupying the distance from the sun at which a planet should be looked for, are regarded by the scientific, with good reason, as being the splinters, the fragments, the fossil remains, of a once magnificent world. If this theory be true, it cannot be determined now, whether the original or parent world, were without a satellite or satellites, or whether some of those asteroids were not satellites or a satellite, which by some great convulsion, were hurried around the sun as now

seen. Jupiter has four moons, which are visible to a telescope of moderate size. In addition to a beautiful appendage of rings, the eighth satellite of Saturn has recently been discovered. Six moons adorn the firmament of Uranus. As yet, only one satellite has been certainly discovered in connection with the newly discovered planet, Neptune. The satellites all turn on their axes, in the same time that they make a revolution around the primary planets. So that if a revolution around the primary constitute a year to the satellite, as a revolution around the sun does a year to the primary, then a day and a year, with the moons, are the same in length. The moon, owing to the fact of its rotation being of the same period as its orbital motion, always presents the same side to the earth; the other being forever turned away in another direction. So that the inhabitants of one hemisphere of the moon, if there be any, have to travel around that orb to see the earth, which, to them, presents the appearance of a magnificent moon. The earth and the moon are, mutually and reciprocally, satellites to each other. This fact singularly displays the Beneficence of the Creator. The remarks here made, in reference to the earth and the moon, are applicable to all the satellites of the solar system and their respective primaries. All the satellites of the solar system move in the plane of

the Ecliptic. They all move in the same direction, that is from west to east, except those of Uranus, which move in a retrograde direction. This retrograde motion is one of the most perplexing enigmas in astronomical science.

It has been stated that Jupiter has four satellites. These are invisible to the unassisted vision, and are four or five hundred millions of miles from us, yet in the economy of the solar system they accomplish highly useful and practical results for us, remote in space as they are. The eclipse of Jupiter's satellites led to the discovery of the motion of light, and the velocity with which it travels through space. The eclipses of these satellites are of great utility in discovering the longitude of places, in a manner both easy and accurate. The mariner, when tossed on an unknown sea, anxious about his cargo, his interests, the time of his return home, and the condition of family and home affairs, can from the eclipses of the moons of Jupiter, unseen by the mass of the human family, determine precisely where he is, and how far he is from the desired port. While these moons doubtless subserve great and useful purposes to their primary, results, showing the Benevolence of Him who constructed them, extend to man sojourning on this planet. If in the physical world, benevolent adaptations and influences extend so far, how much farther in the moral

world may benevolent deeds extend their benign results? The moons of those remote planets not only present a pleasing scene of variety and beauty, but they, in the remote parts of the solar system, subserve highly useful purposes where the light of the sun is diminished by distance.

The satellite of our planet produces tides in the ocean, by which means putrefaction is prevented. Aerial tides are due to the same cause, in consequence of which the atmosphere is kept from stagnation and impurity. In extreme northern latitudes, where the nights are several months long, the moon is of invaluable importance to the inhabitants during the long continuance of darkness. With us the light of the moon exerts a moral influence. No one can look upon the mild radiance of a moonlight scene without being sensible of his baser nature being subdued, and the better emotions and associations of his soul being called into activity. The beauty of moonlight scenes in all ages has been very justly admired. The following is Homer's description of one:

"Behold the moon, refulgent lamp of night,
O'er heaven's clear azure spread her sacred light,
When not a breath disturbs the deep serene,
And not a cloud o'ercasts the solemn scene;
Around her throne the vivid planets roll,
And stars unnumbered gild the glowing pole;
O'er the dark trees a yellow verdure shed,
And tip with silver every mountain's head;

When shine the vales; the rocks in prospect rise;
A flood of glory bursts from all the skies.
The conscious swains, rejoicing in the sight,
Eye the blue vault, and bless the useful night."

A consideration of the phenomena connected with the atmosphere, will furnish us with additional evidence of the Goodness of Deity.

The Earth is surrounded by an atmosphere, or an aerial ocean, extending, as it is usually expressed, upwards, but in strictness of language in all directions around in space, some forty-five miles. This distance must be regarded, not as definite, but as approximate. Being subject to the law of gravity, it is denser nearer the Earth; rarer and more attenuated farther off from it. The question is now settled that the moon has an atmosphere, though very rare. Whether it be suited to forms of life, like those seen on Earth, is questionable. Mercury and Venus are both surrounded by atmospheres; on the latter have been seen high mountains. Mars has a very dense atmosphere, which gives it that fiery, ruddy appearance that characterizes it among the planets, as seen by the naked eye. The new planets, or asteroids, as well as Jupiter, show an encompassing atmosphere. Saturn, Uranus, and Neptune are too remote from us to make any thing like accurate observations as to questions of this nature; but bodies of the same

class, and subject to the same laws, would be expected to show a similar nature. As to the origin of the atmosphere of the Earth and the planets, different conjectures have been propounded. Some have supposed that an original act of creation called those aerial coverings into existence, in connection with the orbs to which they are attached. Others have regarded them as an after exhalation or emanation. Others tell us that there are indications that the atmosphere of the Earth is the lighter and more sublimated parts of that original nebulous mass of materials from which the solar system, under the operation of great laws doing the bidding of the Creator, was elaborated. But this is a question, in the present state of human knowledge, which lies beyond observation, experiment, demonstration, or legitimate deductions. The known, the possible, and the visible have their boundaries. It requires more than conjecture or theory to pierce beyond those boundaries. As to the regions of the impassible, they constitute an "undiscovered country from whose bourne no traveler returns." Sometimes beyond the limits of the known and the visible, an exploration or a voyage of discovery, or a daring scientific crusade is made by some lover of truth and light. The report of such daring ones can be relied on, and by such means the boundaries of true science can be enlar-

ged. In science, as well as in religion, there are regions of darkness, regions of the unseen, and of the impossible, into which no ray of light ever penetrates.

Strip the Earth of its atmosphere, and all sights of beauty would vanish, sounds of music would be heard no more, forms of life would no longer breathe or exist. This world, then, literally and physically, as now it is morally and spiritually, would be the valley and shadow of death. The poet's dream would become a frightful and horrid reality:—

"I had a dream, which was not all a dream,
The bright sun was extinguished, and the stars
Did wander darkling in the eternal space,
Rayless and pathless; and the icy earth
Swung blind and blackening in the moonless air.
Morn came, and went—and came, and brought no day;
And men forgot their passions in the dread
Of this their desolation; and all hearts
Were chilled into a selfish prayer for light."

Were there no atmosphere, the rays of the sun not being refracted and reflected, that luminary would be seen through the misty struggling gloom as a distant watch-fire seen by night. The benefits of the atmosphere are almost innumerable. To recount some of these may serve to impress our minds with a lively sense of the Goodness of the Creator. The respiration of animals and the ger-

mination and growth of plants and animals depend upon its influence. Its pressure has a salutary influence, not only on the human frame, but serves to keep the water in that condition which we find it. The ocean being the great central reservoir, it constitutes a sublime system of water works, by which means man, beast, living thing, and vegetable forms of life, are supplied with a necessary condition of existence. Owing to its density, the clouds are carried around the globe. Put in motion, it constitutes winds, without which there could neither be health nor life. It is the feeder of flame, the medium in which evaporation is carried on, and the vehicle through which odors and perfumes are conveyed to us. The sounds of music and all other sounds are born in it. Being the cause of universal light, it lays open to our view the imposing mountain scenery, the charms of the landscape, and the swelling grandeurs of the prairie and the savanna. The morning and evening twilight are the offspring of it. How fortunate that it cannot be frozen into a crystalline mass, like water. Being transparent and invisible, it shows all objects but itself. Thus it is a great mirror in which the Divine goodness is reflected, even as the rich glowing roseate tints of twilight are seen reflected from the sun after that luminary is invisible. This trait in the atmosphere reminds us of its great Creator, who,

when incarnate, and in man's form, and sojourning in man's world, would give displays of Divine Benevolence in the performance of miracles by which the suffering ones were relieved, and then would prohibit them from making known who bestowed the miraculous compassion.

The atmosphere, which was once supposed to be one of the four elements of which all things were composed, is now, by scientific investigations, found to be composed of different ingredients. The constituents of it being oxygen gas, nitrogen gas, and fixed air or carbonic acid gas; of one hundred parts twenty-one are of oxygen, seventy-eight nitrogen, and a hundredth part, or according to some chemists, a thousandth part of fixed air or carbonic acid gas. Besides these ingredients there are in it a number of foreign particles, such as vapor, dust, smoke, and clouds; there are also an almost infinite number of rays of light constantly passing through it. In one hundred parts of water eighty-eight and nine-tenths are oxygen, and eleven and one-tenth of hydrogen, according to the analysis of Berzelius. Oxygen is the larger constituent both of air and water. Matter takes on various forms, and is found in different degrees of solidity and density. The atmosphere is an exceedingly rare and elastic part of the material creation. The constituents, however, oxygen, nitrogen, and carbonic acid gas, are

more attenuated, and are more sublimated forms of matter. It might be a curious topic of speculation to inquire into the transition point of matter and spirit. It is certain, that from the solid globe passing through varying degrees of density to the elastic gases, or the imponderable agencies, that there is a manifest progression towards the immaterial and spiritual. Deity in the works of creation seems to have avoided sudden and violent transitions. Between the two great divisions of the universe, the physical and the spiritual, the lines of contact and connection run into and commingle with each other. If the proportion of oxygen in the atmosphere were increased or diminished, the result would be disastrous to all life—human, animal, and vegetable; so of hydrogen, and so of carbonic acid gas. There is a relation between the elementary constituents of the air in their proportion to each other, and the forms of life existing and breathing on the globe. This relationship, involving the nicest adaptation of law to life, and matter to law, presents us with a delicate, yet beautiful display of the goodness of the creation. The manifest design of matter being created was to produce the phenomena of life; the varying forms of life show man, the flower and crest, an immortal and spiritual being; an aerial covering has been thrown by infinite goodness around the orbs of space, furnishing facilities for the develop-

ment of life. Sixty-three parts of nitrogen and thirty-seven parts of oxygen form what is usually termed nitrous oxyde; when inhaled into the lungs it produces a great flow of animal spirits, producing a propensity to leaping, dancing, and laughter. Seventy-five parts of oxygen and twenty-five parts of nitrogen form aquafortis, or nitric acid. This is a deadly poison, it is composed of ingredients of the atmosphere we breathe in altered proportions. Nitrogen is destructive to all life in an uncombined state; when disengaged in the process of respiration, being lighter than atmospheric air, it rises up to a higher region, entering into new combinations. By this benevolent arrangement destruction by the wholesale is prevented. As the atmosphere which encompasses the whole globe furnishes the means of existence to all life; so in the all-encompassing Goodness of Deity, we live, and move, and breathe, and have our existence.

Pain, suffering, and the convulsions of nature are not inconsistent with the Goodness of Deity.

In order to the attainment of a correct view of the true nature of evil as it exists, it will be necessary to recur to the character of the government under which we live. The distinction cannot be too often made, and cannot be kept too distinctly before the mind, that the whole existing universe,

or the divine government, consists of two great divisions, physical and moral; or if the phraseology would convey a more accurate idea, material and spiritual. These two divisions being but parts of a unity, having been spoken into existence by the same Creator, and being governed by the same great Ruler. The distinct unity of these two parts of the universe is not only a sublime, but is a highly important idea. Their relation to the Creator, their mutual relation and connection, and their adaptation to intelligent beings, ranging from man to the highest order of angelic nature, are ideas that should be distinctly and fully comprehended. That which is an evil in one department of the government of God is often a benefit in the other. An apparent is often a real evil; a present, a future blessing. Physical disorders work moral advantages. The earthquake and the volcano, in desolating villages, and engulfing in ruin whole cities, cause the human family, with awe and reverence, to acknowledge that there is a God who rules over all. The introduction of sin into the world makes it necessary, under the Divine economy, that at the end of the man-period of the earth, a conflagration should sweep over it. This great catastrophe will be a step in the stage of that progressive improvement which our globe is destined to undergo. Death in every form teaches its many

lessons of wisdom ; restraining excesses, imposing fear, and regulating our conduct. Sickness in a thousand frightful forms evolves the brightest social and moral virtues. There is no such thing as positive and unmixed evil in the universe. If Deity were malevolent, being omnipotent, evil without a modification of mercy, or a single accompaniment of good, would be inflicted on a suffering and doomed race. The truth is, without the disorders, and convulsions of nature, as they are usually esteemed, this earth would not be a residence in any way suited to man ; without these, it would be no better than the ideal picture given by the poet of the infernal regions :

"A universe of death, which God by curse
Created evil, for evil only good,
Where all life dies, death lives, and nature breeds,
Perverse, all monstrous, all prodigious things,
Abominable, unutterable, and worse
Than fables yet have feigned, or fear conceived,
Gorgons, and Hydras, and Chimeras dire."

It is strange how much of fancy, tradition, and superstition have found a place in the Christian religion. Our holy religion in its progress through the lapse of ages, reminds one of some of earth's large rivers, emanating from some mountain height, clear as crystal, and as pure as the snows from which it was born, flowing at first slightly tinged with foreign particles, afterward more adulterated,

then turbid and discolored, and finally moving on in eddies, and counter-currents, impregnated with sand, holding in solution sediment of foul materials, and bearing along leaves, upturned stumps of trees, and drift-wood, an enormous wreck, the spoils of many a shore.

The vicissitudes of day and night, and the variety of the seasons, furnish us with a beautiful practical illustration of the Divine Benevolence.

The periodical recurrence of day and night, is a phenomenon connected with the planet on which we live, as well as all the others of the solar system, of the utmost importance to all the varying forms of life. The alternation of light and the repose of darkness is one of the merciful provisions of an all-wise Providence. All light, or all darkness, would be alike disastrous. The perpetual gloom of midnight would be a horrible idea; the perpetual brightness of noonday would be insufferable. Could one pass all over the solar system, it would be found that the length of days and nights would, in no two orbs, be the same. In Jupiter a day would be not more than half the length of one on earth. In the moon one day and night would fill up nearly a month of our time. Proceeding from the equator to the poles, the length of the days and nights

increase, until they succeed each other at intervals of six month's duration. On that part of the globe where several months of uninterrupted darkness continues, the sterility of the climate is such, that very little life, either animal or vegetable, can exist. Long darkness, then, rests on that part of the globe where the least disastrous results would ensue. This is a provision in the economy of the solar system, that points to the benevolent contrivance of the great Architect of the universe.

The cause of day and night may, on due reflection, be fully and clearly comprehended. Place in the center of a dark room a candle, draw around it a circular thread, or cord; let a child's top be drawn on the thread, or cord, around the candle in the center; and then will be seen extending in a conical form, the shadow of the top. The candle will represent the sun; the thread, or twine, the earth's orbit; the top, the earth; and the conical shadow extending from the center and sweeping toward the wall, night. Then the shadow of the earth constitutes night. The shadow of a house, of a cloud, or an eclipse, may be said to be night on a miniature scale. In the illustration referred to, if the top be caused to turn on its axis, every part of it will successively be in the shadow, and in the light of the candle. In one position to the earth, as it turns on its axis, a spectator would behold

light constantly pursuing darkness around the globe; reminding one of the life of the righteous, during which the favor and sunlight of God's countenance drives away the gloom and despair that may settle down on it. Placed in another position, a spectator would behold a long cone of darkness, which constitutes night, perpetually pursuing, as our planet rotated on its axis, the light; reminding one of the darkness of adversity, ever chasing away the light which might shine on a life of vice and sin. As the earth revolves around the sun, night perpetually accompanies it. Milton, who gave sublimity to all that he touched, alludes, in a felicitous strain, to Satan just before tempting our first parents, in his successful device to escape the watchful eye of Uriel, the "Regent of the Sun," as riding seven times with night around the earth:

"Thence, full of anguish driven,
The space of seven continued nights he rode,
With darkness; thrice the equinoctial line
He circled, four times crossed the ear of night
From pole to pole, traversing each colure;
On the eighth returned, and on the coast averse
From entrance on Cherubic watch, by stealth
Found unsuspected way."

Each planet in the solar system has its night, explainable on the same astronomical principles, and similar in nature to those which are seen in connection with the globe on which we live. The cone

of shadow, or night, cast in an opposite direction from the sun, by the larger planets, such as Jupiter and Saturn, is proportioned to the size of those planets, and their distance from the central luminary. Each of the satellites has its night, just on the same principles as the primary. Even the comets have their night.

In addition to the manifold and important uses of a physical nature, resulting from night, there are highly important and interesting moral lessons of which it most eloquently discourses. Says the pious Psalmist, "Day unto day uttereth speech, and night unto night sheweth knowledge."

This knowledge revealed, is of a most endearing character; it pertains to that life which lies beyond these realms of change, decay, and death :

"Mysterious night, when our first parent knew
Thee, from report divine, and heard thy name,
Did he not tremble for this lovely frame,
This glorious canopy of light and blue?
Yet 'neath a curtain of translucent dew,
Bathed in the rays of the great setting flame,
Hesperus with the host of heaven came,
And lo! creation widened in man's view.
Who would have thought such darkness lay concealed
Within thy beams, O Sun, or could find,
Whilst fly, and leaf, and insect, stood revealed,
That to such countless orbs thou madst us blind?
Why, then, do we shun death with such anxious strife,
If light can thus deceive us, why not death?"

The phenomena of the seasons—spring, summer, autumn, and winter—meet with an easy ex-

planation in astronomical science. The poles of the earth are fixed and stationary; the North Star being the point in the heavens to which the north pole points. On a circular line drawn around a candle, in a dark room, if a child's top be placed with the two ends of it perpendicular to the plane of the circle, and if it be moved around the candle, on the line, all parts of it will be enlightened. If the earth moved around the sun, with its axis perpendicular to the plane of its orbit, all its parts would be shone upon from pole to pole. Hence, there would be no variety of seasons. Owing to the form of the globe, and the manner of the sun's rays falling on it, the heat would be unequal at different points. The seasons, however, at all points would be stereotyped. In the illustration alluded to, if the end of the top be tilted considerably, and if it be moved on the line, while pointing steadily to a stationary point in the room, it will be seen, that in making a complete revolution all parts of it will be shone full upon. When one end of the top tilts to the candle, the rays will fall directly upon it; and so of the other. The axis of the earth is inclined twenty-three and a half degrees to the plane of its orbit. When in its annual revolution, the north pole of the earth tilts, or leans toward the sun, the rays of that luminary fall nearly perpendicularly on it; at the same time fall-

ing very obliquely on the other pole. In the former case, the rays are so concentrated as to create great heat; hence, in successive stages, spring and summer; in the latter they are so diffused that there is a diminution of heat, hence autumn and winter. The probability is, that this explanation is sufficient to convey an adequate idea of the cause of the variety of the seasons, a source both of pleasure and of beauty on our globe. The axes of all the planets of the solar system are inclined, some more, others less, to the planes of their orbits; hence, a variety of seasons in all of them. The cause of this variety being the same in Jupiter and Neptune, as in the Earth. Here is one of the many displays of Divine Benevolence seen in the solar system. Variety in all things is pleasing; dull monotony is at war with all our nobler feelings. Perpetual spring, with its gaudy and shining beauties, would cloy. Summer, sultry, hot, and arid, continued too long would become insupportable. Autumn, fading and decaying, sober and melancholy, protracted to too great a length, would become sadly oppressive. Winter, stern and gloomy, with frost and ice, without change, would make this earth an unfit abode for man. The alteration of these seasons, while in various respects they are highly beneficial, presents a pleasing variety. A continued summer, or a continued day, a continued

winter, or a night without change, would alike be a catastrophe in connection with our planet, that every one would deplore. The vicissitudes of the seasons, and of day and night, may be mentioned among the pleasing incidents connected with the history of this earth. How beautiful the description given of the approach of evening by the author of *Paradise Lost*:

"Now came still evening on, and twilight gray
Had in her sober livery all things clad;
Silence accompanied, for beast and bird,
They to their grassy couch, these to their nests
Were slunk, all but the wakeful nightingale;
She all night long her amorous descant sung;
Silence was pleased; now glowed the firmament
With living sapphires. Hesperus, that led
The starry host, rode brightest, till the moon
Rising in clouded majesty, at length,
Apparent queen, unvalled her peerless light,
And o'er the dark her silver mantle threw."

The fact of astronomical science furnishing us with a measure for time, has an important relation to the topic of discourse.

Chronometers, such as watches, clocks, and dials, add very much to human happiness. Indeed we regard them as being necessary to the enjoyment and prosperity of human society. How far, and to what extent, they exert an influence over the civilization and progressive improvement of human-kind, might be a subject that would reward investigating curiosity. But these discourses will not

afford opportunity to investigate questions of such a nature, however interesting under other and more appropriate circumstances, such pursuits might prove. Chronometers exert a very extensive and important moral influence. They tell of the hours, and warn us of the advance of life's journey, like mile-stones set up on some highway which we travel. They not only *teach* us to number our days and hours, but they do really *number* them for us. Happy are we, if we heed lessons of so much importance coming from such monitors.

The division of time, by these chronometers, is an artificial mode of dividing great natural parts of duration, or portions of duration indicated by the revolution of the heavenly bodies. The solar system constitutes one great dial on which the flow of duration is distinctly indicated. It is a great "horologe machinery divine," hung out in the voids of space. What an august chronometer!—It was fashioned by hands divine; it is divine and true. All human chronometers are but imitations of it; they are shadows and miniature representations of it. Astronomical science, then, furnishes a measure of time. Watches, clocks, and dials, apart from this science, would be useless, worthless, and without signification. The flow of duration without the measurement resulting from the revolution of the heavenly orbs, would be like some

of those under-ground rivers which move on in caverns and subterraneous fissures, in their noiseless and darkling course, without visible object; such as tree, human habitation, rock, or milestone, or mountain chain, to mark their onward progress.

A day is measured by the revolution of the earth on its axis. The period intervening between one rising and another, or between one setting and another, of the sun, measures a day. In scientific language, from the period of the sun being on the meridian to its return, constituting a complete revolution of the earth on its axis, is a day. This is called solar time. The period, intervening from the time a star is on the meridian to its return, is called sidereal time; this is more accurate than solar time. In all astronomical observations and computation, this is the time that is used. The division of the day into twenty-four hours, of hours into sixty minutes, and of minutes into sixty seconds, is artificial and arbitrary; just as the division of a circle into three hundred and sixty degrees, or Fahrenheit's thermometer into two hundred and twelve degrees. These divisions, in either case, are convenient; yet, they might be increased or diminished.

The revolution of the moon around the earth, or the period which elapses from one new moon to another, furnished the original idea of a month.—

New, first, and second quarters, and full moon, four distinct phases, divided the month into four parts, forming weeks. The Jewish sabbath, it has been contended, was the original division of the weeks. The new and full moon occupied so prominent a position among the festivals of the Jewish church, that it cannot be doubted by any one, I think, that the weeks, as brought to view in the writings of Moses, had direct reference to the four phases of the moon. The partition of time into weeks is of such practical utility, that it would be difficult for society to dispense with it. The intercourse and transactions of life, to a great extent, are thereby regulated.

The revolution of the earth around the sun constitutes the measure for a year. During this period there is a revolution of the seasons. The falling of leaves in autumn, the putting forth of buds in the spring, and seedtime, and harvest, have important relations to the earth's annual revolution around the sun. All life, animal and vegetable, together with most that pertains to man's interest in this life, sustains such an important relation to the annual period of our planet about the sun, that without a knowledge of time, as divided into years, society would be kept in a state of barbarism. The astronomical provisions for marking time furnish an instance, of no ordinary character, of the Divine

Benevolence. Without such a provision, life would be a night without twinkling star, or grateful morn—it would be an ocean without shore, or island, or guiding beacon—it would be a vague, indefinite dream—it would be like one of those comets of hyperbolic orbit (never returning within itself), which approaches the sun but once, and then darts off through space, solitary and darkling, on its returnless course forever. One element in the horror of lost spirits in that outer darkness described in the scriptures, is that no orb revolving, no mark, no dial, indicates the flow and progress of duration. But all is one boundless, endless gulf of duration, full of wo, and full of darkness!

Old and New Style are forms of phraseology so frequently used in connection with the computation of time, that an explanation of them may be appropriate in this connection. Until the time of Julius Cæsar, three hundred and sixty-five days were considered a year. For centuries the artificial year was shorter than the natural year—beginning in the time of Cæsar ninety days too soon. To remedy this, the first Julian Year consisted of four hundred and forty-four days. Thereafter every year was to be composed of three hundred and sixty-five days and one-fourth part of a day. Cæsar's artificial year was too long; that is, it was longer than the natural

year. It is in all things exceedingly difficult to harmonize theory and practice. Or in other words, it is very difficult to apply facts and practice to correct theories. In the sixteenth century the civil year was found to be ten days in advance of the sun. The Calendar was corrected in 1582, by Pope Gregory, by the omission of ten nominal days. And by regulations and provisions, not necessary here to be given in detail, framed the civil year to correspond with the natural, so that the equinoxes and solstices will always fall out on days similarly situated, and "the seasons will forever correspond to the same months, instead of running the round of the whole year, as they must do upon any other system of reckoning." In England, the change of style took place after the second of September, 1752, by the omission, or striking out, of eleven nominal days. The next day after the second day of September, instead of being called the third, was regarded as the fourteenth. This was done by act of Parliament. The masses, ever opposed to change, progress, and improvement, clamored, saying that they had been cheated out of eleven days of time! This is New Style. Russia is the only country in which the Old Style is still adhered to: the increasing light now being shed on the darkness of that huge empire will soon displace it, with many other old things, which

are useless and cumbersome. Time has been called a mighty destroyer. It is ever true. Time is also a great teacher—an infallible teacher. What lessons of high moral import does sage old Time, with hoary locks and reverend and grave aspect, teach! What lessons about mutability, and the frailty and brevity of man's life, does he teach! Owing to the revolution of the heavenly orbs, we never occupy but once the same point in space. If our planet were ever to return to the same point in space, it would be after the recurrence of so many millions of cycles that finite capacity would be stunned at an effort to comprehend them. Not only are we making a whirling progress through space, never again to return to the same place, but in the onward progress of time, we never occupy the same point of duration but once. Borne on in this double motion, so awful and mysterious, our existence is one endless progress. But the question comes up with a startling influence, stirring the spirit to its deepest fountains; Whither does this never-ceasing progress tend?

In the solar system a variety of phenomena present themselves, indicative of the Divine Goodness.

The solar system presents a specimen of mechanism on a grand and august scale. Human skill,

contrivance, and structures seem insignificant and contemptible when a comparison between it and them is instituted. The earth makes an annual revolution around the sun, not in a circular, but in an oval-shaped orbit. This is the nature of the orbits of all the planets. The sun is not in the center of the earth's orbit; it is nearer to one extremity than the other. In that part of its orbit nearest the sun, the earth travels with the greater rapidity; in that portion farthest off, with less speed. The result is, our planet is eight days longer in passing over the northern division of its orbit than the southern. This does not affect the temperature of the earth, because when nearer the sun, and traveling with greater rapidity, it remains the less time in the same position; and when at a greater distance, and moving slower, it remains the longer in one position, and hence is the more under the influence of the solar rays. Thus increased and diminished velocity are balanced by greater and less distance from the central luminary. This idea may be presented in another phase. A line drawn from the sun to the earth, would, in the annual motion of our planet, pass over equal areas in equal periods of time, so that in all parts of its orbit, the earth, whether nearer or farther off, would receive the same amount of light and heat. These compensating circumstances show us delicate

and most refined displays of the Goodness of Him whose creating hand formed all worlds and all systems. Another provision of a somewhat similar character to the one just alluded to, may be seen in the mechanism of the solar system. The annual periods of no two of the planets are the same. The annual period of Jupiter is twelve years; of Saturn, thirty; of Uranus, eighty-four; of Neptune, one hundred and sixty-four: Mercury, on the other hand, makes its annual period in eighty-seven days; Venus, in two hundred and twenty-four. If Mercury required as great a length of time in making its annual period as the earth, one of its hemispheres would lean toward the sun for six months. Remaining thus long exposed to the direct rays of the sun, its summers would be intolerably hot. In making its periods in so short a time, its north and south poles are alternately, in rapid succession, turned toward the great source of light and heat. If the earth required twelve years, as Jupiter does, to make a revolution round the sun, instead of one, its seasons would be very different from what they are at present. If our summer were six years (the length of a summer in Jupiter) instead of six months, the heat would become disastrous to man, beast, and vegetable. The length of a summer in Neptune is eighty-two of our years. That distant planet, in turning its

north pole, during one-half of its revolution, directly towards the sun, during this great length of time affords opportunity for the accumulation of the solar rays, so as to produce even there, remote as it is, the foliage, the flowers, and the fruits of summer. Everything in that remote world is on a singular scale. The seasons, in duration, seem ages. A tree on our planet that would be one hundred and sixty-four years old, there would be but one year old. The oak deposits a ring on its outer surface in twelve months, there it would require one hundred and eighty-four years to effect the same. It will be borne in mind that all life on this globe bears a most important relation to its annual revolution around the sun. The same, taking strong analogy for our guide, is the case on all the other planets. Such an adaptation there is between life and the globe on which it is found!

The rotation of the planets on their axes will be found to be the converse of their orbital revolutions. Instead of the remote planets occupying the greater, they require a less time in a rotation.—Mercury rotates on its axis in twenty-four hours; Jupiter in nine; Saturn in ten; and Uranus in nine. This is a benevolent provision in the mechanism of the solar system. The length of the days and nights have a very important influence on the temperature on our planet, and so, doubtless, it

does on all the other planets. The long nights in Mercury (for they are very long compared with the short years) modify the heat of its summer days. The same is the case in Venus. In Jupiter, the rigor of winter, of six years of our time, is gratefully moderated by the recurrence of day, and the warmth of the sun, every four hours and a half. Similar short days and nights during the long winters on Saturn and Uranus are followed by consequences equally, probably more, beneficial. Wherever we turn our attention in the solar system, there we are met by indications of Divine Benevolence. We see Infinite Benevolence has not exhausted itself on our planet. Every orb in the solar system—the central luminary, the primary planets, the satellites, the erratic comets, the asteroids, the zodiacal light, the aerolites, and the interplanetary ether—all, however different in nature, in design, and in magnitude, proclaim the Goodness of Him who has manifested his attributes in material forms, and who has revealed his character in his written word.

The flow of the magnificent river; the placid lake, reflecting tree, house, and hill; and the swelling ocean with its rolling waves, alike declare the Goodness of Deity. The like great fact is seen in the glories of the setting sun, in the blushing dawn of morning, in the twinkling star of night,

and in the radiance of the noonday sun ; it is seen in the succession of day and night, in the alternation of seasons, in blushing spring and fading autumn, in summer's heat and winter's cold ; earth's flowers, dewdrops, rainbows, and genial showers, speak of it in language that cannot be misunderstood. "The shard-borne beetle's drowsy hum," the chirp of the cricket, the song of the forest-bird, the bleating of the flocks, and the voice of human beings, all give utterance to that uncreated and infinite Goodness which embraces within itself all being and all life. So do the explosions, terrific in appearance, of the volcano, the rocking of the earthquake, the flowing of the tidal wave, the might of the tempest, the whirlwind's speed, the sound of thunder, and the roar of the cataract—all, all declare the Goodness of God. That eternal, uncreated "Goodness," adumbrated and shadowed forth in the orbs of space, the forces of nature, and the forms of life, is seen, incarnate, and in our own likeness, and in our own form, as revealed in the scriptures, in the person of Him who is both the Son of man, and the Son of God.



S E R M O N V.

GRANDEUR OF DEITY,

AS SEEN IN THE EXTENT OF THE PHYSICAL UNIVERSE.

"The Lord hath prepared his throne in the heavens; and his kingdom ruleth over all."—PSALM CIII: 19.

DIFFERENT sacred writers dwell on different topics of religion. For example, John, on the love of God; Luke, on the sayings of Christ; Isaiah, on the Messiah's kingdom; David, on the extent and grandeur of the dominion of God. The royal Psalmist, with a soul lighted up with the fires of devotion, frequently, with expressions of rapture, expatiates on the greatness of God's character, and the range of the Divine empire. "Such knowledge," says he, "is too wonderful for me; it is high, I cannot attain unto it. Whither shall I go from thy Spirit? or whither shall I flee from thy presence? If I ascend up into heaven, thou art there: if I make my bed in hell, behold, thou art there.

If I take the wings of the morning, and dwell in the uttermost parts of the sea ; even there shall thy hand lead me, and thy right hand shall hold me. If I say, Surely the darkness shall cover me ; even the night shall be light about me." "When I consider thy heavens, the work of thy fingers, the moon and the stars which thou hast ordained ; what is man, that thou art mindful of him, and the son of man, that thou visitest him !" "Thy kingdom is an everlasting kingdom, and thy dominion endureth throughout all generations." How great the dominion of God ! How great, how august the Being who presides and rules over that dominion. With what truthfulness, and poetical fire, does the bard give utterance to the feelings of his soul in the following lines :

"Vast concave ; ample dome ; wast thou designed,
A meet apartment for the Deity ?
Not so ; that thought thy state impairs,
Thy lofty sinks, and shallows thy profound,
And straitens thy diffusive ; dwarfs the whole,
And makes the universe an errery."

After enumerating instances of the bounty of God, the Psalmist reflects, with pleasing emotions, on his greatness ; views him on a glorious throne, "high and lifted up," encompassed by innumerable throngs of radiant angels, the ready and willing ministers of his providence. "The Lord hath

prepared his throne in the heavens; and his kingdom ruleth over all." This declaration, concerning the dominion of God, the Psalmist makes after he had copiously treated of the divine mercy; signifying that he is not only to be praised for his mercy, but for his majesty. In proportion to the divine majesty is the divine mercy; the limit of the former is the limit of the latter. What would God's grace signify; what would it avail; were he not a monarch extending his royal scepter over all things. This comprehensive and expansive view taken of the character and government of God, makes the Psalmist's mind more devotional, and fills him with unwavering confidence in an over-ruling providence. "Bless the Lord," he exclaims, "all his works, in all places of his dominion; bless the Lord, O my soul." Says he, "But the mercy of the Lord is from everlasting to everlasting, upon them that fear him, and his righteousness unto children's children; to such as keep his covenants, and to those that remember his commandments to do them."

The Grandeur of God, as seen in the extent and splendor of the created physical universe, will constitute the theme of the present discourse.

It is through the medium of matter that we acquire a knowledge of spirit. Mind communi-

cates with mind only through material agencies. It is by the agency of material organs and instruments that sounds are produced; the atmosphere conveys these sounds, and the organs of hearing and the brain transmit them to the minds of others. One mind, through the agency of books, will reach others so as to make a powerful impression at a remote distance, either of time or space.

Electricity has, in modern times, become an agency of intercommunication between intellects widely separated; The hieroglyphics of Egypt are a medium of communication between the intellects of those who lived three or four thousand years ago and the living of the present hour. The intellects of the prophets of old, in Babylon and Judea, by ideas preserved on material records, pour a flood of light into our minds. The material constitutes an isthmus connecting mind with mind, bridging over the interval, and supplying a great thoroughfare along which emotions and ideas pass and repass. The scriptures reveal nothing to us as to the manner of disembodied spirits communicating to each other between the hour of death and the day of the resurrection. Doubtless some appropriate mode exists. What it is, or what its nature, we know nothing. After the resurrection, redeemed spirits will communicate with redeemed spirits through glorified, raised, and spiritual bod-

ies. Whether angels are pure, spiritual essences, or whether they are surrounded by tangible forms and shapes we know not; how they convey thoughts and desires to each other, we are not informed in the volume of inspiration. God always holds communications with men through material agents and forms: for example, he reveals himself to Elijah in a still small voice, to the children of Israel on tables of stone, and to the prophets in many instances in language. When God revealed himself to the world, it was done through the incarnation of his Son. A vail of flesh is thrown around the insufferable radiance of the Godhead, before man can hold converse with that august Being.

How important, then, is the study and contemplation of the physical universe! It is not an idle, vain, imaginary work. It is of highest practical importance. There is a relationship, of a sublime character, subsisting between the material and intellectual world. The study of the one opens the way for the study of the other. The greater the knowledge we obtain of the material world, the more accurate, the more comprehensive, and the more thorough the knowledge we may arrive at of the immaterial creation. It requires a profound knowledge of both to enable us to mark out the border-land separating the material from the spir-

itual. We contemplate spirit through material agents and material developments. The material creation is a medium through which we are to view the unseen, the incorporeal, the uncreated One, who is God over all, forevermore blessed. As mind through material organs and agents holds intercourse with mind, so may each of us, through the created universe, converse with the great and adorable Creator. As the astronomer, through the power of vision, the telescope, and the agency of light, sees the orb or system of worlds not visible to the naked eye, so may every one, contemplating the vast and resplendent created universe, behold through it the glories of Him who gave being to all things, and who was before all things.

After these general reflections, the first and most appropriate step to be taken in the investigation of the imposing subject before us, is to inquire into

The mode of determining the distances, magnitudes, and densities of the orbs treated of in astronomical science.

Man is limited in his locomotion; he is cabled by his physical nature to this earth—three or four miles in a balloon, or on a high mountain, is as far as he can ascend above the sea-level. Man may cross oceans in ships, sail up and down rivers, over lakes, and along coasts, and traverse plains

and mountains in vehicles, but he can never leave the planet on which he was born, and of which, physically, he is a part. He has no ship or vehicle that will enable him to rise up and make a voyage or journey to the moon, or one of the planets, or one of the fixed stars, or one of the remote nebulae. There is no great highway, or thoroughfare, leading to any of these, marked by milestones, over which man may pass and tell the distance as he proceeds on his journey. Yet, circumscribed and frail, physically, as man is, and tied to the surface of the earth, he can measure the distance of the heavenly bodies, and tell their magnitudes and densities. This can be done with accuracy and precision. The distance to Jupiter or to one of the fixed stars, as Sirius, or Alpha Lyra, may be measured with more accuracy than the distance from this place (Memphis) to New Orleans, or to Charleston. The distance to Jupiter or the fixed stars is measured with the accuracy of mathematical science—the measurement between terrestrial points, on several accounts, is imperfect. The density of the different planets of the solar system can be determined as accurately as the weight of a bale of cotton or a lot of merchandise. Human intellect never appears more God-like than in the performance of such achievements. The spiritual, in such instances, shows itself different and infinitely superior to the material.

How are the distances of the heavenly bodies measured? By what means can man extend his measurement through those untrod voids of space with such accuracy and precision? Many who have not given their attention to the principles on which such processes are conducted, are totally skeptical as to the results. The height of a tower can easily be measured; it can be done with as much accuracy and precision as though a line were extended from its summit; this can be accomplished without ascending to the top of the tower, or even a part of the way. The manner in which this is done is familiar to the reader—his preliminary school course in arithmetical exercises, has made him familiar with the principles. Just as the height of the tower is ascertained, so is the distance from the earth to the moon. Some patient thought, and a clear understanding of the mode of determining the altitude of the tower, together with an application of the principles in question, to finding out the distance of the heavenly orbs from the earth, will enable any one to see clearly how such performances are accomplished.

In finding out the height of the tower, it is necessary to measure from the bottom of it to any given point, the distance of which we may assume to be one hundred feet; from this station, by a quadrant, or other angular instrument, the angle of the ele-

vation of the top of the tower may be taken. The base line measured, the angle of elevation, and the tower, constitute a triangle; one side of which triangle and two of its angles are known; the other two sides and the remaining angle can easily and accurately be ascertained. On analogous principles, the distance of any two objects, on the surface of the earth, may be ascertained. The engineer can tell the distance from a tree, or mound, on one side of a river, to a house on the other. All that is necessary is to measure off the distance from any two points; this furnishes a base line; at the extremities of the line the angles can be found. Here then, is one side, and two angles of a triangle; the other parts of the triangle, of course, can be found; hence, in this way, the distance intervening between the two objects is discovered.

It will be borne in mind, that distance, in cases of this kind, makes no difference; the remote is found out as easily, and as correctly, as the object near at hand. This is true, with regard both to celestial and terrestrial objects. Long since the pyramids of Egypt were measured by the shadow of a man; at a given time of day, the proportion subsisting between the height of a man, and the length of the shadow he casts, was found; at the same time, the known length of the shadow of the pyramid, by the same, determines its height.

The altitude of the mountain is measured by the barometer. These two last facts are mentioned without their having specific allusion to the object directly before us.

But in order to understand the way in which the distance from the earth to the heavenly bodies is ascertained, we must explain what is meant, in astronomy, by their parallax.

Objects seen from different points, change their apparent places. This has been illustrated after this manner;—two men sitting at a distance from each other, looking at a candle in a room, see it at different points on the wall. In this instance, it is taken for granted that a distance intervenes between the wall and the candle. Two spectators beholding the moon from different points, will see it in different positions in the heavens; this change of apparent places forms angles, by which means the distance of the body is found out, as the height of the tower, and distance of the tree or house. The centre of the earth, and the eye of the beholder, form the extremities of a line of known length; the angle of parallax can be ascertained; then two angles, and a side of a triangle, are known; the other parts of it can easily be ascertained, and by this means the distance from the earth to the moon is found out. The distance to Jupiter or Neptune is ascertained in the same manner. So great, how-

ever, is the distance of the fixed stars, that the semi-diameter of the earth is insufficient, in length, to find a parallax; and without this, nothing can be done in determining their distance. The above is called the horizontal parallax. Astronomers have attempted to ascertain the parallax of the fixed stars, by using the whole diameter of the earth's orbit, as a base line, that is one hundred and ninety millions of miles. This is called the annual parallax; it failed to accomplish the desired object; for two hundred years astronomers, in vain, resorted to it. Dr. Bradley, by means of the motion of light, and the progressive motion of the earth in its orbit, has succeeded in finding a mode of detecting the parallax of the fixed stars.

The star "sixty-one," Cygni has been found to be distant from the earth sixty-two billions, four hundred and eighty-one thousand five hundred millions of miles. Across this mighty interval, it would require light—which flies with the inconceivable velocity of one hundred and ninety-two thousand miles per second, and which passes from the sun to the earth in eight minutes—ten years and one hundred and fourteen days to pass. If we suppose the stars all to be of the same real size, and that their apparent difference results from distance, then a star of half the apparent size of the one just mentioned, would be four times the dis-

tance, one three times less, nine times the distance in space. By the aid of the telescope, a mode of measuring the distance of the fixed stars has been discovered of a most important character. In discourses of this nature, it would not, however, be appropriate to detail the principles whereby it is effected. Here we see by the achievements of genius, and the principles of science, milestones have been erected through portions of the physical universe, and that the profundities of space have been sounded by measuring lines. Though the whole extent of the vast created universe has not been explored, yet enough has been, to make us feel with awe and shuddering sensibility, the signification of the Psalmist:—"Whither shall I go from thy Spirit, or whither shall I flee from thy presence? If I ascend up into heaven, thou art there: if I make my bed in hell, behold, thou art there.—If I take the wings of the morning, and dwell in the uttermost parts of the sea—even there shall thy hand lead me, and thy right hand shall hold me. If I say, surely the darkness shall cover me; even the night shall be light about me. Yea, the darkness hideth not from thee; but the night shineth as the day; the darkness and the night are both alike to thee."

When the distance of a heavenly body is known, its apparent size can be accurately ascertained by

instruments; distance and apparent size will give the real size. Hence, when it is said that Jupiter is fourteen hundred times, and that Saturn is a thousand times, larger than the earth, it is not the language of conjecture, but of mathematical demonstration.

The weight of water can easily be determined; from the attraction of mountains, the density of the whole globe compared with water has been discovered; the earth thereby becomes a standard by which to weigh the other bodies of the solar system. The attractive influence exerted by the bodies of the solar system, as manifested in perturbations, serves as a means of ascertaining the densities of those bodies.

The distances, magnitudes, and density of the orbs of the solar system, serve as a great base line from which to set out, to find out something of the extent and greatness of the physical universe. The diameter of the solar system, taking the orbit of Neptune as its extreme limit, is not less than six thousand millions of miles; and hence its circumference is more than eighteen thousand millions of miles. But if we take the distance to which the comets proceed in space, from the sun, as the extent of its area, the magnitude of it is still more enormous than viewed as having the orbit of Neptune as its extreme limit. The laboring mind can scarce

extend itself to that vast limit marked off by the orbit of the planet just named. But to comprehend the vast area of that circle, the radius of which is measured by the extent to which the comet of greatest orbit darts off from the sun into the voids of space, seems too great an effort for the capacity of human intellect. But the solar system, vast and extended as it is, would have to pass in review, before the mind, a hundred millions of times before an idea of the greatness of one small portion of the created universe, could, to any thing like an accurate extent, be comprehended.

This process seems overpowering; the mind shrinks and turns away from it in despair. And yet our astral system, composed of one hundred millions of stars, that is of that many suns and solar systems, is but one of three thousand great astral systems visible to the telescope. If the powers of the telescope were enlarged sufficiently, not only three thousand more, in addition to the present three, but thrice three thousand huge astral systems, each in size and vastness seeming in itself a universe, might be found, in appropriate locations in the infinity of space. Cultivated intellects must forever fail to comprehend the extent of the dominion of God, as represented by the created universe. All of its depths can never be sounded, either by telescopes, or by the power of numbers, or by the mag-

ical force of mathematical science. And yet all of this great and august creation is full of the glory of God; it is in all its splendor but a shadow of his existence and nature; it is a vast created word expressive of his grandeur; the word is finite, but the grandeur at which it aims to give utterance, is uncreated and infinite! All of this immense creation is full of the presence of Deity!

"It was God's hand that shaped the world,
And laid it in the sunbeams; and that God,
With his great presence fills the universe,
And, could we dwell like night among the stars,
Or plunge with whales in the unsounded sea,
He still would be around us with his care."

There are two of the orbs of the solar system which may be selected as examples illustrative of the Grandeur of the Deity.

The one is the central body of the system, the Sun; the other, the planet Saturn. Possessing a greater amount of gravitating force, or containing more matter, than all the bodies of the system, and from its central position, the sun cannot fail to impress the mind with sentiments of sublimity and grandeur. In the sacred volume, it is said, "the Lord God is a sun and shield;" the Saviour of the world is called "the Sun of Righteousness." The fact of the Sun being used as a symbol both of God the Father, and of Christ the Son, is evidence of its

being prominent among the objects of creation. That which is used as a visible representative of the invisible, uncreated, eternal Being, whose unveiled and unshadowed brightness and splendor cannot be looked upon by mortal vision, must be great and magnificent. John, in the Apocalypse, "saw an angel standing in the sun." Milton, in *Paradise Lost*, thus alludes to this :

. "Whereby he soon
Saw within ken a glorious angel stand,
The same whom John saw in the Sun."

.
"The archangel Uriel, one of the seven
Who in God's presence, nearest to his throne,
Stand ready at command, and are his eyes,
That run through all the heavens, or down to earth
Bear his swift errands over moist and dry,—
O'er sea and land."

The enormous magnitude of the sun might be referred to as having a very important bearing on the topic of discourse. The phenomena of a luminous atmosphere enveloping the body of the sun, bear a very important relation to the Grandeur of Deity. The time has not been distant, when the sun was regarded as a huge globe of fire. It was even conjectured that the comets played the part of ministering fire-makers. It has been shown satisfactorily that the sun is an opaque body. The spots seen on its surface, by their magnitude (some of them are as large as the earth) and the amazing

rapidity with which they disappear, clearly indicate that it is an opaque body. The theory respecting it is, that it has an atmosphere proportioned to its magnitude, subserving all the vital and physical economic purposes of the earth's atmosphere; in which life in its multiform variety develops itself; in which the process of evaporation goes on, and clouds are formed, and rain and dew descend, and the twilight glows, and the rainbow's colors are seen; and on which sounds are borne, and strains of melody float, and odors are wafted. On this atmosphere of the sun float phosphorescent clouds, self-luminous, and possessing the power of radiating, almost to an infinite extent, the phenomena of light and heat. While light and heat are radiating from these phosphorescent clouds, all over the solar system, and even far beyond; there may be, and doubtless is, thrown back on the body enveloped by them, a mild and subdued radiance, producing a splendor indescribable, and affording a habitation for intelligent beings, as much more desirable than ours, as the great central orb exceeds in magnitude the planet on which we live. Invested by such an atmosphere, and enveloped by such resplendent robes of phosphorescent clouds, the Sun, occupying the central position in our system, and so stupendous in size, is a fit physical emblem of the great Godhead indued with his eternal

attributes, and robed in the sheen and radiance of his own glory:

"Great source of day: best image here below
Of thy Creator: ever pouring wide,
From world to world, the vital ocean round,
On nature write, with every beam, his praise."

A thousand times larger than the earth, at a distance of nine hundred millions of miles from the sun, making a revolution in its orbit in twenty-nine years and a half, and situated between the orbits of Jupiter and Uranus, the planet Saturn, conspicuous on account of its size, but rendered more so because of its luminous appendages, and the splendid cortege accompanying it, pursues its unwearied course in its allotted path. Five rings, (and probably seven), by the aid of the telescope have been seen encompassing the orb of Saturn. These rings, to an inhabitant of that planet by night, would present the pleasing appearance of a broad and splendid arch, extending entirely across the firmament, resembling, but far more luminous, and occupying a broader expanse, than the milky-way, the imposing wonder of our nocturnal sky. The breadth of the exterior ring is seven thousand two hundred miles; of the interior twenty thousand miles; the diameter of the exterior ring is two hundred thousand miles, which is nearly twenty times the diameter of the earth. Sir John Herschel supposes that

the thickness of the rings does not exceed one hundred miles. In addition to these rings, eight satellites have been discovered, revolving about this planet, diversifying its scenery, and illuminating its nights. Some of these moons are seen just rising, some on the meridian, and others going down; some in the first quarter waxing, some full, and some in the last quarter waning; one horned, another gibbous, and another orbed; one perchance is seen totally eclipsed, another partially; one going into an eclipse, another emerging from it. What a scene of variegated splendor; what wonder and magnificence! Such a world as this fills our minds with images of beauty and sublimity. What must be the Grandeur of that Being who creates such worlds? A great satisfaction it is to contemplate objects of such diversified wonder. A high and pious delight it is to contemplate the immaculate and uncreated glory of Him from whom all being and life emanate.

An inquiry into the nature of the fixed stars, and the end they were intended to subserve in their creation, may have a tendency to give us an enlarged view of the physical dominion of God.

Those stars visible to the naked eye, constitute ornaments in the firmament, which shine during

the darkness of night with a gem-like luster. In all ages this scene of wonder and brilliancy has engaged attention. The poet, the shepherd, and the philosopher, have alike, when beholding it, been filled with rapture. The saints of the Old Testament break forth in strains of pious awe and rapture on looking up to the blazing wonders of the nocturnal firmament. They were so many lamps to light up their thoughts in pious contemplation, through the silence and darkness lying in awful mystery between human vision and the throne of God. The traveler in the desert, in the forest, or in the vast plain, or the mariner on the high sea, when the shades of night settle on his path, can turn his eye to the stars, which God has ordained, and by their twinkling light may shape his course. The motion of the planets can be ascertained in relation to these shining ornaments of night—they become a means to the astronomer of ascertaining correct time. However valuable the stars may prove in these respects, it will be manifest, on a consideration of their natures, their distance from us, and from each other, and their enormous magnitudes, that they were intended to subserve a higher and more important ultimate end. Millions of fixed stars are beyond the reach of mortal vision. These can answer none of the purposes above enumerated, The Creator must

have had some other object in view when they were called into existence—an object apart from man and man's world. The telescope, sweeping beyond the vision of the unassisted eye, opens up to view, myriads upon myriads of stars, scattered over the voids of space. As many as the telescopic tube reveals, so many, and far more, further on in the encompassing infinity, may exist in their full splendor, adorning other firmaments, and shedding radiance on other eyes full of admiration, and full of devout wonder.

If the Sun were pushed as far back in space from us as the fixed stars, it would appear no larger than they, and not as large as some of them. It might be removed into remote invisibility, and then the telescope would descry far behind it, stars twinkling with the same radiance that it would. This, in itself, is strong presumptive, and even analogical evidence, that the stars visible to the eye, or telescope, or invisible to both, are suns, the centers of great systems of worlds, diffusing abroad gravity, and light, and heat.

Allusion has already been made to the astounding fact of the enormous distance intervening between us and the fixed stars. Their distance from each other is as great as their distance from us. In those cases where there is apparently but a hand-breadth between them, or even a finger-

breadth, they are separated by the most enormous intervals. In those portions of the firmament where their imperfect visibility presents the appearance of a fretted blaze of light, not inappropriately, nor inelegantly, denominated "star-dust," a like distance, doubtless, subsists between them. The same law of distance holds, we have every reason to believe, in relation to those myriads revealed by the space-annihilating power of the telescope. There is a great variety in the apparent size of the stars visible to the naked eye. There is, it cannot be doubted, a difference in their real magnitudes. Analogy, from the varying size of the orbs of the solar system, would teach this. But there is more reliable testimony on the subject than analogies, however satisfactory they may be. In general terms, but subject to proper limitations, it may be announced that it is distance which causes the difference in the apparent size of the stars—the larger ones being nearer to us, the smaller ones farther from us. If we divide the visible ones into six different orders, or magnitudes, ranging from the brightest to the most obscurely visible, we may construct a sort of sounding-line by which a portion of the abysm of space surrounding the solar system, (which is as a dotted cluster of islands in an all-encompassing ocean), may be sounded ; but the depths to which this line

extends indicates, (and there comes along with the indication a shuddering awe over the spirit), the mysterious and unfathomed profundities that lie beyond. The nearest fixed star lies at such an enormous distance from us that it is more than human intellect can do to form a correct idea of it. We may announce it in billions of miles: but who, or what intellect, has yet had a precise and definite conception of each unit, and of each mile, in a billion of miles? Who could grasp the thousands, or hundreds, in a billion? This is one billion: but it would require sixty to carry us to one of those stars in our neighborhood of space—for this is the distance of those apparently largest and really nearest to us. If thus far to a star of the first, how far to one of the second, magnitude? than the second, how much more distant are those of the third? The fourth must be immensely more distant than the third; the fifth than the fourth. The remove of those of the sixth magnitude from those of the first is enormous. A painful and overwhelming sense of an imperfectly comprehended interval, or an interval comprehended in part only, is the result of the greatest effort of the greatest intellect to obtain an accurate conception of the distance from our planet to a fixed star of the sixth magnitude.

The planets shine with a borrowed light—the

stars with a native light. This latter fact has been satisfactorily demonstrated. * Shining with their native light, if we could approach as near to the stars as we are to the sun, they would present the same phenomena that it does. Some of the stars give indications of rotating on their axes, as the sun does. The multiplicity, the magnitude, the distance from us and from each other, of the fixed stars; together with the end they were intended to subserve—that is, serve the purpose of suns to encircling planetary worlds—cannot fail to impress, deeply and sensibly, the mind of every one with the greatness of the physical dominion of God. Deeply sensible of this astronomical fact, and in a vein of true poetical feeling, a poet of our own country, who has written but little, but that little to purpose, says:—

“Seest thou those numerous orbs that roll above?
Those lamps that nightly greet thy visual powers
Are such a bright capacious sun like ours,
The telescopic tube will still descry
Myriads behind, that 'scape the naked eye,
And farther on a new discovery trace
Through the deep regions of encompassed space.
If each bright star so many suns are found,
With planetary systems circled round,
What vast infinitude of worlds may grace—
What beings people the stupendous space?
Whatever race possess the ethereal plain,
What orbs they people, or what ranks maintain?
Though the deep secret heaven conceals below,
One truth of universal scope we know:

Our nobler part, the same ethereal mind,
Relates our earth to all their reasoning kind,
One Deity, one sole creating Cause,
Our active cares and joint devotion draws."

There are systems of stars performing revolutions about each other and exhibiting the phenomena of complementary colors, which serve in part to mark the extent and exhibit the Grandeur of the physical dominion of God.

In speaking of systems of stars, it is necessary to make a distinction between them and what are termed nebulae. The former are minor clusters, the latter immensely large ones. The former are associated clusters within the latter; the former is a part—an integer; the latter, the whole—the complete assemblage. The latter may be compared to that large group of islands, Polynesia, in the Pacific Ocean; the former, to the group of the Friendly Islands: or the same difference may be represented by the large group of islands, Malaysia, and the Spice Islands, a group within that group.

An astral system may contain almost an infinite number of stars; it may contain almost innumerable systems of stars. Sometimes stars have suddenly assumed visibility, which never were seen before, and have shone with increasing splendor for a time, and then would commence diminishing in brightness, and ultimately disappear and never be

seen again. The "Stella Nova," seen by Tycho Brahe, in 1572, to make its appearance for the first time, and after waxing and waning for a period, and then finally disappearing in an apparent conflagration, is one of many examples that might be given. There are periodical stars; they increase and diminish, in regular periods, in brightness. These stars in their mutations exhibit phenomena on a grand and imposing scale. Various conjectures have been started by way of explaining the cause of their singular changes. Some have supposed that opaque bodies, at intervals, come between us and them; others, that cosmical clouds obscure them. It is difficult to determine the cause; the fact is conspicuous; it constitutes one of the wonders of astronomical science. In addition to these new and variable, there are double, treble, and multiple stars. These, in orbits, mutually revolve about each other; some in greater, others in less periods.

The two stars in Castor revolve about each other in a period of two hundred and fifty-three years. It will be remembered that these two stars constitute a double star; it requires the power of the telescope to separate them. The double, treble, quadruple, and the multiple stars, all present the appearance of a single star; they are separated and made distinctly visible by the aid of telescopic power.—

Gemma Virginis has a period of one hundred and ninety thousand years. The fourfold group in the constellation Lyra requires ten hundred thousand years to make a complete mutual revolution. These periods of time are immense; they fill the mind with ideas of the august. But each of these stars in these binary, treble, and quadruple groups have, doubtless, their cortege of revolving worlds, just as the sun has, for they are all suns. It is then a sun with planets, satellites, comets, and all other cosmical appendages revolving about a sun, or suns, of like conditions. What an imposing aspect these associated groups in ceaseless and complicated motion present! There is a grandeur connected with them far exceeding all the wonders seen in the solar system. This respects the duration of their orbits, and the extent of the area of space they occupy. The solar system embraces an extent of space that seems almost infinite; they embrace a limit which is not really infinite, but which the limited faculties of human intellect can never fully comprehend; after the utmost effort to comprehend it, only an impression of the vast and incomprehensible results.

A great and cultivated intellect, from analogies, will sometimes give utterance to thoughts that seem to be prophetic. Milton, in *Paradise Lost*, furnishes an example, in the following lines, con-

taining both poetical beauty and astronomical truth :

"Other suns, perhaps,
With their attendant moons thou wilt descry,
Communicating male and female light,
Which two great sexes animate the world,
Stored in each orb, perhaps, with some that live."

Compared with its present advanced state, little, in the days of Milton, was known of astronomical science. The fact of the existence of double stars, in his day, was entirely unknown. That splendid phenomena of a variety of colors, among them, had then never been seen by the telescope. Yet, the great epic poet, makes the angel Raphael, say to Adam: "Other suns perhaps, with their attendant moons thou wilt descry, communicating male and female light." This male and female, or contrasted light, has actually been seen by the telescope to exist among these systems of stars. It constitutes one of the sublimest wonders of astronomy. It is one of the most imposing and dazzling displays of grandeur seen in the great heavens. Says Sir John Herschel: "It may be easier suggested in words, than conceived in imagination, what a variety of illumination two stars, a red and a green, or a yellow and a blue one must afford a planet circulating around either; and what cheering contrasts and grateful vicissitudes, a red and a green day, for instance, alternating with a white one, and with

darkness, must arise from the presence or absence of one, or other, or both, from the horizon." Struve asserts, that in one hundred and four binary systems, the two stars, in each, exhibit complementary colors; the one red, the other violet. Imposing, indeed, must worlds be, surrounded by light of this nature: "One hemisphere of a planet may be illuminated with a yellow sun, while the other is at the same time enlightened by a green; and both suns may occasionally shine in the same hemisphere, producing such a blending of hues, and a contrast of coloring over the whole landscape, as to render the aspect of the scene completely different at one time from what it is at another." Deity, sometimes revealed himself in the most imposing grandeur, as on Sinai, at the giving of the law, or to the setting up of the tabernacle in the wilderness, or at the dedication of the temple by Solomon in Jerusalem, or as on the Mount of Transfiguration, or the Mount of Ascension, or as seen in John's Apocalyptic vision. Even so in creation, he sometimes manifests himself in the most imposing grandeur. Those pairs of suns of complementary colors afford a splendid example.

In the vegetable creation, extending from the simplest organism, there exists a variety of consecutive stages, rising one above another, terminating in the tropical palm. In the animal creation,

forms of life, ascending, one above another, are seen, until we arrive at man, the crest and crown, the ornament and perfection of life on this planet. We find that the sun, the center of the solar system, exceeds in magnitude and splendor all the other bodies revolving about it. There is, among the planets, much difference, as to size and grandeur; Mercury and Saturn will serve as examples. On the hypothesis that each star is a sun, surrounded by planets; the same remark, as to the superior splendor of the central luminary, holds good.—Every orb revealed in astronomical science, may be, and doubtless is, subject to the same, or analogous laws of mutation, as those governing our globe. Changes, here on our planet, have, during its past history, resulted in its gradual improvement. These changes will result in the same, in future. The sacred volume assures us that the future condition of the globe on which we live, will present a scene of unparallelled splendor.

We are told, that there is to be a new heavens and a new earth; and that the new earth, is to be the abode of righteousness. Something of a similar perfection and splendor may await the history of every orb in space. There may come a period, in the future history of the whole created physical universe, when it will present a scene of grandeur and magnificence, compared with its pre-

sent aspect, that will be as different as night is from day, or winter from summer, or a self-luminous body from one that is opaque. It must be confessed, that speculations of this nature, lead us to the verge of the known, amid twilight, and shadows, and gloom. Yet, even on the verge, and in the land of the unknown, there exist many and great truths; and shadows may be cast from gigantic mountain facts, and twilight may emanate from remote luminaries.

Space, is infinite; the created universe limited and finite. The created universe being limited, must have form and shape. In all parts, it is not probable that it is alike; some portions must be marked by higher grades of splendor than others. This is true, of the solar system. This is true, among the stars, as may be seen among associated systems of stars, or pairs of suns, of complementary colors. The herb, or plant, striking roots into the earth, first sending out leaves, then shooting forth small branches, and then larger and more beautiful ones, and ultimately unfolding, on the crest, the bloom, may constitute no inapt emblem of the physical universe. From the splendor of those systems of stars, of complementary colors, and from the enormous size of some of the astral systems, it may not be improbable that we are situated in the lower strata of the created universe; and

that, ascending upward, toward the throne of God, there may be worlds of magnitude and splendor, far exceeding any thing of which we can now form any conception. In contemplating the grandeur of Deity, we may be correctly guided by the following sentiments of the poet:—

“ Not to this evanescent speck of earth
Poorly confined — the radiant tracks on high
Are his exalted range; intent to gaze
Creation through, and from that full complex
Of never-ending wonders, to conceive
Of the sole Being-right, who spoke the word.
And nature moved complete.”

I will call attention, in conclusion, to those august siderial phenomena called Nebulæ, as additional evidence of the Grandeur of God.

The idea prevailed for many ages that the globe was an extended plain, bounded on all sides around by encompassing darkness. As alluded to in a former lecture, Homer, in the *Odyssey*, conveys this idea when he conducts his hero to the verge of darkness to carry him into the world of spirits. A great advance was made when it was demonstrated that the earth was a globe suspended in space. When the clumsy, circumscribed machinery of the Ptolemaic system of astronomy was set aside, and the present theory of the solar system was adopted, ideas of the extent of space were much enlarged. The telescope turned to the stars, in connection

with the aid of mathematical science, to an amazing extent, yet vaguely, expanded human conception of the nature of the regions of space. After a time, the enormous idea of its infinity was adopted and taught. Freed from barriers, shackles, and restraints, the human mind in its native energy rose up and made explorations of a marvelous character. That vast apparent wilderness of stars surrounding our globe was long deemed illimitable; it was supposed to have neither shore, bounds, nor land-marks; it was supposed to be an interminable forest; beyond the farthest reach of laboring imagination there still extended untrod, unvisited, and unconceived of wilds, lying still beyond unconceived of wilds. But the telescope in process of time sounded the abyssm of stars. The great heavens were found to have form and shape. The idea was overwhelmingly grand. For the first time the human mind seemed to make an approach toward the infinite One; an indescribable awe and a deep religious reverence came over it. One step was taken toward the Holiest of Holies, where the real presence of Him who was symbolized in the temple in Jerusalem, has its dread and glorious existence. The form of the great heavens, or those myriads of stars around us, has been ascertained to be that of an enormous ring. That zone extending all across the heavens is the form of it as visible to the naked eye. Be-

yond the milky-way, or the system of stars in which we are located, having an annular form, the telescope descried, far over mighty voids of space, that which at first seemed filmy, milky, cloud-like specks. These under higher telescopic power took on definite forms and shapes; ultimately some of them were resolved into stars. Then the astounding idea of other firmaments and other creations dawned on the mind. The dawning light seemed to emanate from another universe—it seemed to come from a remote infinity. That which at first appeared a filmy speck, and afterward proving to be a great firmament or creation, in astronomical language, has been called a Nebula. No less than three thousand of these nebulæ have been revealed by the wonderful power of the telescope. The solar system occupies an area of space of enormous extent. Eighty millions of such areas, or probably one hundred millions, would give us the limit and magnitude of our astral system—that is, the Milky-way; for there are in it eighty or one hundred millions of stars. This amazing number of stars or solar systems composing our astral system, as an aggregate, have a definite form, as much so as a single system. As there are great voids of space intervening between the sun and any one of the fixed stars, or between one star and another, which is the same in either case as the distance between one solar system

and another, so there are doubtless immensely greater voids of space intervening between one astral system and another. To the intellect of man, in passing from one great astral system to another, it is as though a transition were made from one universe to another, or from one creation to another, or from one, (however tautological it may sound,) infinity to another. To form a definite conception of one astral system—the voids of space it extends over, the multitude of systems of suns, and of single ones, together with the countless opaque orbs which it contains—is more than finite capacity can accomplish. But when the mind has labored to comprehend in its vastness and in all its minutiae, this one system of stars, or astral system, as Hercules labored with heavens on his shoulders, or Samson overturning the temple of the Philistines, then three thousand other great astral systems must pass in review before the mind, ere the whole of the created universe visible to the telescope is seen. And all of this may only be one parterre in the garden of creation. In taking such views of the works of the Creator's hands as these, infinity in its true awfulness is felt by the mind. The existence of God in the fullness of its eternity and incomprehensibility is before us. Creation, like the ladder that Jacob saw in his vision, extending from earth to heaven, through many grades extends from us

to the throne of the Eternal. Like a bright jewel, the whole of creation, in all its vastness, hangs pendant on the Omnipotence of Deity, radiant and resplendent with the glory of his nature—the luster and brightness of it encompassing and surrounding him with a sheen of grandeur suitable to his august character.

A D D E N D A

A

The five discourses in the first part of this work, treat of topics connected with Natural Theology. An essay is prefixed to them on this Science. It may not be inappropriate here to transcribe from Lord Bacon* a very excellent paragraph or two on Divine Philosophy or Natural Theology. "And as concerning Divine Philosophy or Natural Theology, it is that knowledge or rudiment of knowledge concerning God, which may be obtained by the contemplation of his creatures ; which knowledge may be truly termed divine, in respect of the object, and natural, in respect of the light. The bounds of this knowledge are, that it sufficeth to convince Atheism, but not to inform religion ; and therefore there was never miracle wrought by God to convert an atheist, because the light of nature might have led him to confess a God ; but miracles have been wrought to convert idolators and the superstitious, because no light of nature extendeth to declare the will and true worship of God. For as all works do show forth the power and skill of the workman, and not his image ; so it is of the works of God, which do show the omnipotency and wisdom of the maker, but not his image ; and therefore therein the heathen

* Advancement of Learning, volume 1, page 194.

opinion differeth from the sacred truth ; for they supposed the world to be the image of God, and man to be an extract or compendious image of the world ; but the Scriptures never vouchsafe to attribute to the world that honor, as to the image of God, but only the works of his hands ; neither do they speak of any other image of God, but man ; wherefore, by the contemplation of nature, to induce and enforce the acknowledgment of God, and to demonstrate his power, providence, and goodness, is an excellent argument, and hath been excellently handled by divers.

“ But, on the other side, out of the contemplation of nature, or ground of human knowledge, to induce verity or persuasion concerning the points of faith is, in my judgment, not safe : ‘ *Da fidei, quæ fidei sunt.*’ For the heathen themselves conclude as much, in that excellent and divine fable, the Golden Chain : ‘ That men and gods were not able to draw Jupiter down to earth, but contrariwise, Jupiter was able to draw them up to heaven.’

“ So as we ought not attempt to draw down or submit the mysteries of God to our reason, but contrariwise, to raise and advance our reason to the divine truth. So as in this part of knowledge, touching divine philosophy, I am so far from noting any deficiency as I rather note an excess, whereunto I have digressed, because of the extreme prejudice which both religion and philosophy have received, and may receive, by being commixed together ; as that which undoubtedly will make an heretical religion, and an imaginary and fabulous philosophy.”

B

In the following quotation, Bacon* points out the two-fold advantage of philosophy to religion.

* *Filum Labyrinthi*, volume 1, pp. 97, 98.

“ He thought, also, how great opposition and prejudice natural philosophy had received by superstition, and the immoderate and blind zeal of religion ; for he found that some of the Grecians, which first gave the reason of thunder, had been condemned of impiety ; and that the cosmographers, which first discovered and described the roundness of the earth, and the consequence thereof touching the antipodes, were much otherwise censured by the ancient fathers of the christian church.

And lastly, in our times, and the ages of our fathers, when Luther and the divines of the Protestant church on the one side, and the Jesuits on the other, have enterprised to reform—the one the doctrine, the other the discipline and manners of the church of Rome, he saw well how both of them have awaked to their great honor and succor all human learning. And for reason there cannot be a greater and more evident than this, that all knowledge, and especially that of natural philosophy, tendeth highly to the magnifying of the glory of God, in his power, providence, and benefits, appearing and engraven in his works, which without this knowledge are beheld but as through a vail ; for if the heavens in the body of them do declare the glory of God to the eye, much more do they in the rule and decrees of them declare it to the understanding. And another reason, not inferior to this, is, that the same natural philosophy principally amongst all other human knowledge, doth give an excellent defense against both extremes of religion, superstition, and infidelity ; for both it freeth the mind from a number of weak fancies and imaginations, and it raiseth the mind to acknowledge that to God all things are possible ; for to that purpose speaketh our Saviour in that first canon against heresies, delivered upon the case of the resurrection, ‘ You err, not knowing the Scriptures, nor the power of God ; ’ teaching that there are but two fountains of heresy, not knowing the will of God revealed in the Scriptures, and not knowing the power of

God revealed, or at least made most sensible in his creatures. So as he saw well that natural philosophy was of excellent use to the exaltation of the Divine majesty, and that which is admirable, that being a remedy of superstition, it is nevertheless an help to faith. He saw, likewise, that the former opinions to the prejudice hereof had no true ground, but must spring either out of mere ignorance, or out of excess of devotion, to have divinity all in all ; whereas it should be only above all ; but which states of mind may be best pardoned ; or else out of worse causes, namely, out of envy, which is proud weakness, and deserveth to be despised ; or out of some mixture of imposture, to tell a lie for God's cause ; or out of an impious diffidence, as if men should fear to discover some things in nature which might subvert faith. But still he saw well, howsoever these opinions are in right reason approved, yet they leave not to be most effectual hindrances to natural philosophy and invention."

C

Lord Bacon expressess himself in so felicitous a strain in reference to the salutary moral and religious influence exerted by Philosophy and human learning on religion ; and so much in harmony with the spirit of Natural Theology, that I cannot avoid transcribing another paragraph* or two from him, which will be full of interest to the learned Christian reader.

"Wherefore, to conclude this part, let it be observed that there be two principal duties and services, besides ornament and illustration, which philosophy and human learning do perform to faith and religion. The one, because they are an effectual inducement to the exaltation of the glory of God ; for as the Psalms and

* Advancement of Learning, volume 1, page 176.

other Scriptures do often invite us to consider and magnify the great and wonderful works of God, so if we should rest only in the contemplation of the exterior of them, as they first offer themselves to our senses, we should do a like injury unto the majesty of God, as if we should judge or construe of the store of some excellent jeweler, by that only which is set out toward the street in his shop. The other, because they minister a singular help and preservative against unbelief and error; for our Saviour saith, 'You err, not knowing the Scriptures, nor the power of God,' laying before us two books or volumes to study, if we will be secured from error; first, the scriptures, revealing the will of God; and then the creatures, expressing his power; whereof the latter is a key to the former; not only opening our understanding to conceive the true sense of the scriptures, by the general notions of reason and rules of speech: but chiefly opening our belief, in drawing us into a due meditation of the omnipotency of God, which is chiefly signed and engraven upon his works. Thus much therefore for divine testimony and evidence concerning the true dignity and value of learning."

D

The poets sometimes teach lessons of wisdom concerning the proper contemplation of the works of nature. They set Natural Theology to music. Two or three examples will be given.

"In contemplation of created things,
By steps we may ascend to God." MILTON.

"O Nature, how in every charm supreme!
Whose votaries feast on raptures ever new!
O, for the voice and fire of Seraphim,
To sing thy glories with devotion due!
Blest be the day I 'scaped the wrangling crew.

From Pyrrho's mase, and Epicurus' sty
 And held high converse with the god-like few,
 Who, to the enraptured heart, and ear, and eye,
 Teach beauty, virtue, truth, and love, and melody."

BRATH.

"Look Nature through, 'tis revolution all;
 All change; no death. Day follows night; and night
 The dying day; stars rise, and set, and rise;
 Earth takes the example. See, the Summer gay,
 With her green chaplet and embrosial flowers,
 Droops into pallid Autumn; Winter gray,
 Horrid with frost, and turbulent with storm,
 Blows Autumn and his golden fruits away;
 Then melts into Spring—soft Spring, with breath
 Favonian, from warm chambers of the South,
 Recalls the first. All, to re-flourish, fades;
 As in a wheel, all sinks, to re-ascend,
 Emblems of man, who passes, not expires." Youse.

E

There are numerous allusions in the sacred scriptures to objects of creation as illustrative of the Being, the Power, the Wisdom, and the Goodness of God. A few of these I will here take the liberty to subjoin.

"By what way is the light parted, which scattereth the east-wind upon the earth? Who hath divided a water-course for the overflowing of waters, or a way for the lightning of thunder; to cause it to rain on the earth, where no man is; on the wilderness, wherein there is no man; to satisfy the desolate and waste ground; and to cause the bud of the tender herb to spring forth? Hath the rain a father? or who hath begotten the drops of dew? Out of whose womb came the ice? and the hoary frost of heaven, who hath gendered it? The waters are hid as with a stone, and the face of the deep is frozen. Canst thou bind the

sweet influences of Pleiades, or loose the bands of Orion, canst thou bring forth Mazaroth in his season? or canst thou guide Arcturus with his sons? Knowest thou the ordinances of heaven? canst thou set the dominion thereof in the earth? Canst thou lift up thy voice to the clouds, that abundance of waters may cover thee?" *

"God came from Teman, and the Holy One from Mount Paran. Selah. His glory covered the heavens, and the earth was full of his praise. And his brightness was as the light; he had horns coming out of his hands; and there was the hiding of his power. Before him went the pestilence, and burning coals went forth at his feet. He stood and measured the earth: he beheld and drove asunder the nations: and the everlasting mountains were scattered, the perpetual hills did bow; his ways are everlasting. . . . The mountains saw thee, and they trembled; the overflowing of the water passed by; the deep uttered his voice, and lifted up his hands on high: the sun and the moon stood still in their habitation; at the light of thine arrows they went, and at the shining of thy glittering spear. Thou didst march through the land in indignation, thou didst thresh the heathen in anger." †

"Who hath measured the waters in the hollow of his hand? and meted out heaven with a span, and comprehended the dust of the earth in a measure, and weighed the mountains in scales and the hills in a balance? Who hath directed the Spirit of the Lord, or being his counselor hath taught him? Behold, the nations are as a drop of a bucket, and are counted as the small dust of the balance; behold he taketh up the isles as a very little thing. And Lebanon is not sufficient to burn, nor the beasts thereof sufficient for a burnt offering. All nations before him are as nothing, and are counted to him less than nothing, and

* Job xxxviii: 24—34.

† Hab. iii: 3—12.

vanity. . . . Lift up your eyes on high, and behold ; Who hath created these things, that bringeth out their host by number ; he calleth them all by names, by the greatness of his might, for that he is strong in power, not one faileth." *

"Beloved, be not ignorant of this one thing, that one day is with the Lord as a thousand years, and a thousand years as one day." †

"Ah, Lord God ! behold thou hast made the heaven and the earth by thy great power and stretched out arm, and there is nothing too hard for thee. . . . The great, the mighty God, the Lord of hosts is his name ; great in counsel, and mighty in work." ‡

"For by Him were all things created, that are in heaven, and that are in earth, visible and invisible, whether they be thrones, or dominions, or principalities or powers ; all things were created by him, and for him : and he is before all things, and by him all things consist." §

"Behold the fowls of the air ; for they sow not, neither do they reap, nor gather into barns ; yet your heavenly Father feedeth them. Are ye not much better than they? . . . Consider the lilies of the field, how they grow ; they toil not, neither do they spin ; and yet I say unto you, that even Solomon, in all his glory, was not arrayed like one of these. Wherefore, if God so clothe the grass of the field, which to-day is, and to-morrow is cast into the oven, shall he not much more clothe you, O ye of little faith?" ||

* Isaiah xl: 12—26.

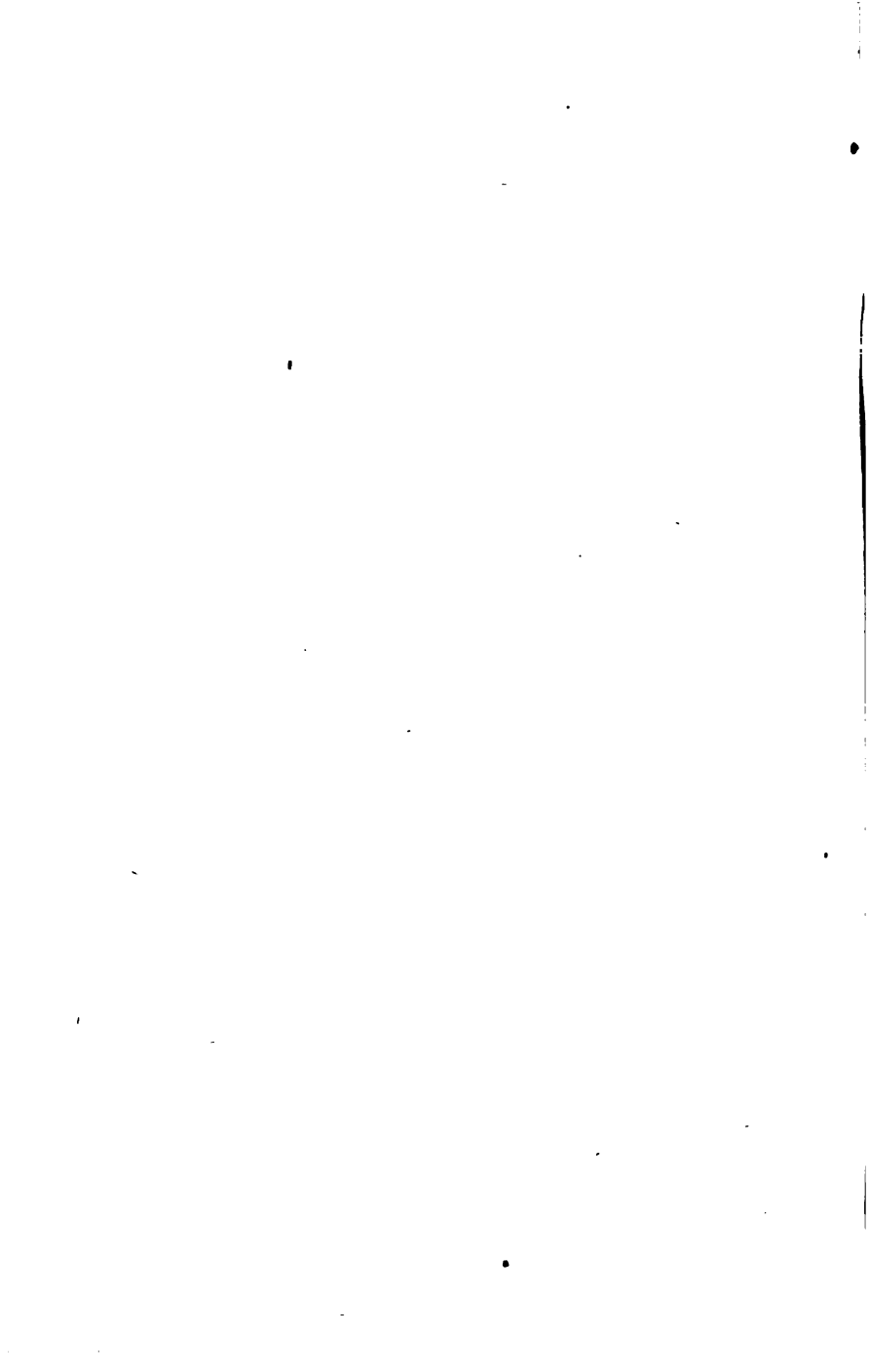
† 2 Peter III: 8.

‡ Jer. xxxii: 17—19.

§ Col. i: 16, 17.

|| Mat. vi: 26—30.





ASTRONOMICAL SERMONS.

PART II.



ESSAY.

ASTRONOMICAL SCIENCE CONSIDERED IN RELATION TO THE TEACHINGS OF THE SACRED SCRIPTURES.

"Tis the property of all true knowledge, especially, to enlarge the soul by filling it; to enlarge it without swelling it; to make it more capable and more earnest to know, the more it knows."

"Ignorance is the curse of God,
Knowledge the wing wherewith we fly to heaven."

THE practice of connecting Science and Religion in the teachings of the pulpit, and all other modes of christian instruction, is fully justified from scriptural examples. Moses, we are informed, "was learned in all the wisdom of the Egyptians, and was mighty in words and in deeds." His education fitted him for his divine legation. Without which he could not have filled the place of Law-giver to the Jewish nation; he could not have furnished a sacred ritual which would have guided the devotion of the age, and served as an introduction to the Christian dispensation, spiritual, and glorious in its nature. The singular train of circumstances which introduced Moses, the son of an outcast and slave, into the court of Egypt, where he was received as an inmate, and where probably he was

made heir apparent to the throne, which became the means of his receiving the best education that the age could afford, furnishes a remarkable instance of that providence which God exercises over human affairs. Gifted with native intellect, enjoying the advantages of a thorough education, and being inspired of God, Moses stands pre-eminent among the great legislators of antiquity. Job displays a very extended acquaintance with Natural History and Astronomy. His allusion to different constellations evinces his accurate knowledge of Astronomical Science. Solomon was renowned for his wisdom. This wisdom did not merely extend to spiritual things and religious topics; he has left on record numerous proverbs, full of wisdom, pertaining to all departments of life. The sacred narrative informs us that "he spake three thousand proverbs; and his songs were a thousand and five. And he spake of trees, from the cedar tree that is in Lebanon even unto the hyssop that springeth out of the wall; he spake also of beasts, and of creeping things, and of fishes." His poems, most of them at least, his treatise on Botany, and his work or works on Natural History, have been lost.

Paul was a man of profound education, and extended and varied research. In his Epistle to Titus he shows an acquaintance with the poetical literature of Crete; he quotes Epimenides, (he calls him a prophet) to acquaint Titus with the groveling vices of its inhabitants. In Athens he shows an acquaintance with different systems of Greek Philosophy; for "certain philosophers of the Epicureans and of the Stoics encountered him." Before the Areopagus he quotes from one of the Greek poets; Aratus was the poet from whom he quoted. To these scriptural examples might be superadded the names of many eminent

divines and christian teachers; such as Chalmers, Butler, Paley, and others. The piety and intelligence of the christian church in all ages, but especially in modern times, have adopted the plan of connecting science and religion in various forms of christian instruction, believing that there existed a divine harmony between them.

It has sometimes been urged, that as the cross of Christ is the great vital and central theme of revealed religion, that in all matters pertaining to religion nothing else need be referred to. Reference to other topics is not intended to lessen the value of the cross. If this were the intention, or result, the objection would have force. The investigation of scientific subjects cultivates the mind, illuminates, and elevates it to a point from which the better it contemplates the high and sacred truths of the cross. The Author of the gospel is the Author of nature. He who died upon the cross created all worlds. He who commanded the preaching of the cross commanded the planets to move in their orbits. He who rules in the Church as King and Head governs the whole physical universe. He who promised to be with his disciples to the end of the world is present, in power, with every orb of space, with every living creature, and with every spire of grass, and every tree, shrub, and flower. The God of nature is the God of revelation. The same God who revealed his written word by his Spirit has called into existence all beings and worlds. That Being who has revealed himself in the Bible has manifested himself in creation. The Bible emanated from the Spirit of God; the works of creation from his power. There can be no discrepancy between the Bible and the works of nature. There is no want of harmony between religion and science. The cross of Christ sanctifies science; and, in turn, science

throws light on the doctrines of the cross, and prepares, in human society and in the human heart, a highway for their success. Both emanating from the same unchangeable and immaculate Author, there is a sacred harmony between them. Those who divorce them are guilty of folly and impiety.

One of the greatest obstructions in the way of the gospel is apathy and indifference. Thousands of minds never turn attention to its great truths. They live in stupor; they never once look at its truths; they consider not the evidences of the gospel; its claims they regard not: in this way they spend their lives, without knowing anything of its nature.

To break up this apathy, to remove this stupor, and to awaken and quicken the mind, it is necessary to present objects of interest, wonder, and imposing beauty. If it be said that the Holy Spirit is intended to remove the moral disability of the mind and to present motives of action, it may be remarked that means and agencies are made use of to effect this purpose. Ordinarily, the sacred scriptures are the means through which divine access is found to the heart: the Spirit, not directly, and not without a medium, but through the written word, acts on the human heart and understanding. As the Father made the Son, in his personality and incarnation, the medium through which he held communication with the human family, so the Holy Spirit, through the appointed means of grace, through providential dispensations, and through the works of creation, operates on the minds of mankind. There are facts and objects treated of in science, not only of a nature to prepare the mind in various ways for the reception of the truths of religion, but they serve as a medium of communication to the

Spirit of God. When the Psalmist affirmed that day and night spake and proclaimed wisdom, his meaning evidently was that the Divine Spirit through them evolved emotions and religious contemplations. In the sciences, especially the physical sciences, there are wonders of a nature to awaken attention, enlist the feelings, and excite sentiments of devotion. In the vegetable world, from the lichen and moss to the cedar of Lebanon, the palm of the tropics and the oak of the mountains, variety and wonder abound. Chemical science presents us with much of deepest interest, as it reveals the nature, laws, and affinities of substances. In Geological science, in all the variety of fossil remains, in mineral ingredients, in the great agents of change, and in all the strata of which the earth's crust is composed, there are objects of a nature, of a number, and of a variety and magnitude, fully capable of keeping attention constantly awake. Anatomy and physiology, showing how wonderfully and fearfully man is made; electrical science, developing an agent of great force and subtilty; and the science of optics, viewed in relation to the structure of the eye and the laws of vision—each has its peculiar interest. Astronomical science exceeds all others in the number, variety, and magnitude of the objects of which it treats. What variety seen in the sun, the fixed stars, the planets, the satellites and rings, the asteroids and the aerolites, the comets, and zodiacal light! What magnitude in the orb of Jupiter, or the Sun, or the great astral system! What a number of orbs in the solar system! What myriads of stars in our astral system! What splendor in Saturn, engirdled by rings and encompassed by satellites, and in those systems of stars of complementary colors! The laws and objects treated of in these sciences, when viewed in their relation to the Crea-

tor, become powerful auxiliaries to religion. They serve to demonstrate the truth of revealed religion. They answer the purpose of illustrations—unfolding the character and perfections of Deity.

The art of printing has accomplished the most astonishing results in favor of religion; it has become a powerful engine in extending its truths to the nations of the globe. Commerce, in all ages, has afforded facilities for the spread of the gospel. Means of communication between nations and countries have multiplied opportunities and advantages for diffusing the scriptures. Learning, to a greater extent than any or all of these facilities, prepares the way for the promulgation of the life-giving principles of revealed religion. Thus Science and Revelation harmonize in accomplishing the same great end. Instead of discrepancy, there is unity of objects and unity of results with them. In harmony they point to duty and to God. They are cognate and german, being of the same divine lineage.

The Author and Governor of the moral world is the Creator and Upholder of the physical world. Both of these two worlds emanated from the same creating Source. He who governs one governs the other. There is not only connection between them, but there is also harmony. There is nothing in the material world that conflicts with revelation; there is no truth or fact in those sciences which relates to the created universe, that is at variance with the Bible. Just as well say that a good man's word and action were at variance, as to say that nature and revelation did not harmonize. Revelation is the word of God—creation his works. Who could be guilty of the sin and folly of affirming that the word and works of the immutable, the immaculate, and the all-glorious One did not chime together without discrepancy, discordant note, or dissonant sound?

By connecting science with religion we may the better confront infidelity successfully. Something is gained in favor of religion when it is shown that Christians are as great lovers of science, and are as truly learned as unbelievers. Those who reject the bible as a fable believe the truth of science; on this ground friend and foe of religion can meet and unite their labors in scientific investigations. Every law, and every object, indicates wisdom, contrivance, and skill. The idea of an intelligent Creator forces itself on the mind. Through nature, nature's God is seen. The footprints of the Creator are seen all around. In this way the mind of the infidel gradually becomes prepared to turn from the perusal of nature's volume to peruse the volume of inspiration, where every page is adorned with more rays of divine light than there are seen stars twinkling in night's concave. Science, itself, like the lanterns of those virgins in the gospel, that conducted them through the dark to the illuminated bridal chamber, will lead the mind of honest infidelity through nature's gloom, shadows and darkness, to the brightness and radiance of revealed truth.

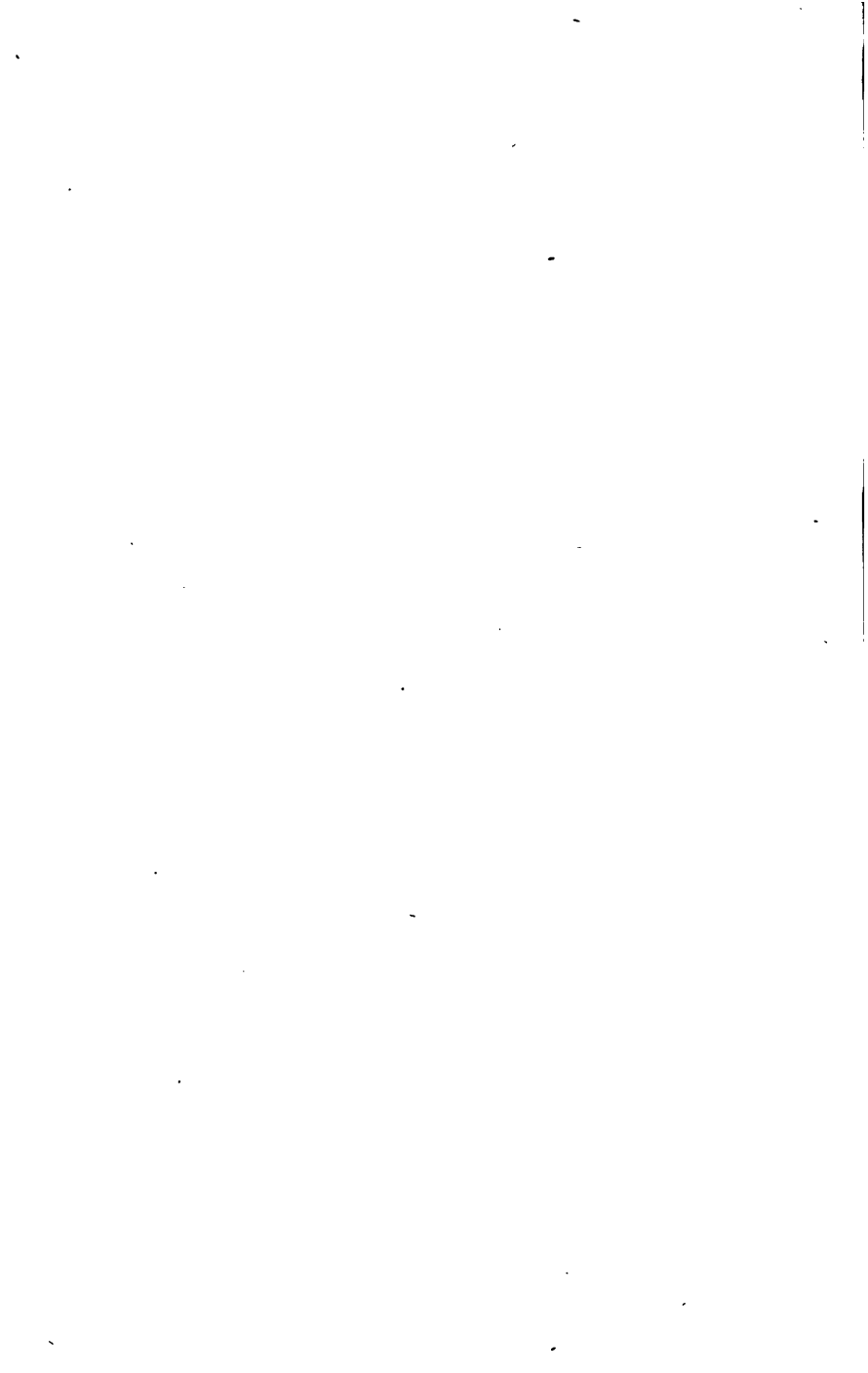
Another advantage resulting from connecting science and religion, is that it affords an explanation of many parts of the sacred volume. The reading of Egyptian hieroglyphics, has thrown light on many portions of the Old Testament. The excavations of Nineveh have confirmed the truth of certain historical parts of the sacred volume. Geological science has given a different view of the meaning of the first chapter of Genesis, as well as of many analogous passages. The science of Astronomy has enlarged our ideas of the divine character, and has given us much more extended and much more accurate ideas of his

government. There are, in the revealed word of God, many allusions and distinct references to Astronomical topics; that whole class of scriptures can only be fully understood by scientific knowledge. The sacred scriptures were revealed to us by inspiration; we, in the exercise of our mental faculties, are to resort to all appliances and necessary helps to understand their meaning. A knowledge of languages and of the meaning of words, an acquaintance with the laws of criticism, the guidance of history, the aid of commentators, and the extended and varied teachings of science, are all necessary to the accomplishment of this end. All of the physical sciences are valuable in this respect. Astronomy excels all others; it throws a noonday light on Revelation. It is a sublime anthem, set to music, sounding forth in deep, majestic, and swelling tones the praise and character of Him who has claims on our homage, and demands on our obedience and gratitude. In verse, radiant with beauty as the firmament shines with stars, and the perusal of which causes a sabbath to come over the soul, Addison sings:

“Soon as the evening shades prevail,
The moon takes up the wondrous tale,
And nightly, to the listening earth,
Repeats the story of her birth;
And all the stars that round her burn,
And all the planets in their turn,
Confirm the tidings as they roll,
And spread the truth from pole to pole.

What though in solemn silence, all
Move round this dark terrestrial ball;
What though no real voice nor sound,
Among their radiant orbs be found,
In reason's ear they all rejoice,
And utter forth a glorious voice,
Forever singing, as they shine,
The Hand that made us is divine.”

SERMONS.



S E R M O N I.

ASTRONOMY OF THE BIBLE.

"And, lo, the star, which they saw in the east, went before them, till it came and stood over where the young child was."—MATTHEW ii: 9.

Pious people, in all ages, have felt and expressed unnecessary concern as to the imaginary discrepancies of scientific discoveries and the teachings of the sacred volume. This concern is entirely gratuitous. There exists no real grounds for it. The Apostle uttered warnings against the oppositions of science, falsely so called. False and not true science does injury. Just as well oppose the extension of true religion because Paganism and Mohammedanism have been injurious to human society, as oppose true science because of the results and evil tendencies of false science. The true and the false in all things are as different in nature, in appearance, and in results, as sin and holiness; or as the spotless cherub and the depraved

demon; or as the realms of glory and the regions of endless darkness. It is not in the nature of things for true scientific discoveries to be at variance with the scriptures. The Bible is true, and, therefore, no truth can militate against its teachings—all truth harmonizes and is consistent with itself. So far from it being evidence of superior piety for Christians to manifest unnecessary concern about scientific teaching conflicting with revelation, it, in truth, shows a great want of faith in the divinity of the scriptures. If the Bible be true, which we all believe, it cannot be overthrown. If the Bible be from God, which it is, no science which treats of the works of God will be at variance with it. The scriptures harmonize with all true science. In turn, all true science harmonizes with the scriptures. It is not a shrinking, veiled, benighted, superstitious, prejudiced, bigoted veneration which really honors the Bible. The sacred volume, brought in contact with true or false theories, shines in its own inherent light of truth, and appears in the splendor of its own divinity. On the introduction of new sciences, much alarm has been felt by Christians for the safety of the scriptures. Astronomy and Geology have both shared this fate. Both, however, instead of contradicting, have confirmed the truth of the volume of inspiration. The errors of the past ought to instruct

the future. The Church, like individuals, should grow wiser by experience. The world, in too many instances, has treated its benefactors as its enemies. The fate of Aristides, Socrates, and Jesus Christ, are examples which may be adduced. The conduct of the Church and of Christian teachers has been of a similar nature, in too many instances, in relation to the sciences. Where the greatest benefit has been conferred, the greatest opposition has been shown. It is to be devoutly wished that the age has passed when such unnecessary hostility may be indulged against benefactors. The darkness and superstition which once hung about the human mind have been dispersed like the morning fog before the rising sun. The days of witchcraft, astrology, and alchemy have passed by. A new era has dawned—an era of scientific light, of truth, and of reason. We live under a new dispensation—"Old things have passed away, behold all things have become new." Henceforth we may look for new modes of action—for new modes of procedure. The future will be a reign of reason.

From these general prefatory observations, let us direct our attention to the specific topic intended to claim our attention during the present hour, which is

The Astronomy of the Bible: or, an examination of some of those passages of Scripture in

which reference is made to Astronomical Science.

The scriptures teach us that it is in God that we live, and move, and have our being. In every sense—physically, morally, and intellectually—we are dependent on the Being who created us. By his aid we can the more readily accomplish any undertaking: nay, without him we can do nothing. Before proceeding farther in the investigation of the subject before us, it will be appropriate, and in accordance with the teaching of the sacred scriptures, to address a throne of grace for divine light and spiritual assistance. O thou great and august One, thou who art uncreated, eternal, and immutable, thou Spirit of life and light, shine into the heart of thy servant, enlarge his views, elevate his feelings and thoughts, and do thou, O thou glorious life-giving Spirit, grant correct views, and accuracy and clearness of thought, and may thy servant treat the topics for investigation in this discourse, according to the tenor of the sacred volume!

In the opinion of many, it may sound strange to announce such a topic as the Astronomy of the Bible for formal discussion in a set discourse. There is, however, a propriety in such a mode of procedure. Numerous allusions and references are made in the sacred scriptures to subjects and objects connected with Astronomical Science. The passages of scripture in which these references are

made, cannot be understood without an acquaintance with Astronomy. We are under as much obligation to study these passages as any other in the sacred volume. All scripture is given by inspiration. All should be studied with equal diligence. The Spirit of God having made no difference, we should make none. There are various portions of the sacred volume relating to ancient manners and customs which cannot be understood without a knowledge of those manners and customs. In the historical and prophetic portions of the sacred scriptures, a knowledge of civil history is necessary to a correct understanding of them. It is not merely enough to read the Bible, in order to understand it, it must be studied—it must be studied with helps and appliances. Criticism, history, and science, alike contribute to explain its meaning. On one occasion our Saviour inquired of the disciples, “Have ye understood all these things?” It is said of Christ, that “Then opened he their understanding, that they might understand the scriptures.” Philip inquired of the “man of Ethiopia,” “Understandest thou what thou readest?” Our Saviour said to the Jews, “Search the scriptures; for in them ye think ye have eternal life; and they are they which testify of me.” How important the duty of searching the scriptures! The study of them is

one of the leading duties of the Christian's life. All helps and facilities should be resorted to in this sacred study. The explanation of them is one of the prominent duties in the life of the minister of the gospel. The pulpit and the press are legitimate channels through which such explanations may be made. Now, in calling attention to the "Astronomy of the Bible," the object is the unfolding of the true meaning of the word of inspiration, as it came from the Spirit of God. This is the aim of your speaker this evening. In giving me your attention, I hope you will be actuated by the same Spirit.

The star alluded to in the text, first merits our attention.

This is not one of those stars treated of in astronomical science. It is not reasonable to suppose, that one of those huge orbs would be commanded to quit its central position, and go on the mission of conducting the Wise Men from the east to the birth-place of the Messiah. The mission would have been an important one, yet, we are not to suppose such a resort would be made. Economy is a characteristic in the divine miracles, and indeed, in all the divine proceedings. Miracles are never performed merely as an ostentatious display; there must always be a demand for them—there must be a necessity for them.

When Lazarus was raised from the dead, there was no miracle performed causing the stone to roll away from the entrance of the grave; it had to be taken away by the friends of the deceased. So we see, that a resort, in the proceedings of the Divine Being, is never made to miraculous agency, when there does not exist a necessity.

Moreover, there is always a proportion existing between the quality or force of the miracle, and the object intended to be performed. A needless and prodigal display of supernatural agencies, is never witnessed. Simplicity is the characteristic of all the proceedings of the Divine Being; especially is it of the dynamical agencies of his miracles. "Let there be light, and there was light," was the form of the first recorded miracle.

"Lazarus come forth," was the simple procedure by which Jesus caused the dead man to awake into life, and come out of the grave. Uniformity is characteristic of the proceedings of the Divine Being. When a supernatural beacon, or luminosity, is to guide the Wise Men from the east to the place where the infant Messiah was born, we are not to look for a departure from these rules of God-like simplicity. A huge orb will not be commanded to quit its august position, and serve the office of a torch-bearer, or a candle-bearer, to the men of wisdom, whose home was in the east.

Every star is a sun—the centre of a great system, encircled by planetary worlds, as our sun. For a star, then, to quit its position to perform an office of the nature of the one in question, would leave a whole system of worlds, with all connected with them, in midnight gloom, and in the coldness of an arctic winter; together with the disastrous consequences, of the gravitating agency being so disturbed as to produce a local anarchy and chaos.

The stars are so enormously large, that they would be altogether unfit to perform an errand of the nature of the one to which reference is made in the text. The sun, more than five hundred times larger than all the primary planets, satellites, and comets of the system; or more than thirteen hundred thousand times larger than the earth, would be quite unsuitable to perform such an office. The sun, viewed as a star, is of a medium size; pushed back into the voids of space, as far as the fixed stars, it would appear much smaller than many of them. “The intrinsic light of ‘Syrius,’ known as the dog-star, is nearly equal to that of fourteen suns. The star ‘Vega,’ by means of a micrometer, and a “magnifying power of six thousand four hundred and fifty,” has been found to have a diameter thirty-eight times as great as the sun. If this be true, the solid contents of this star would be fifty-four thousand eight hundred and

seventy-two times that of the sun, the great central body of the solar system! Is it reasonable to think, that the all-wise Governor of the universe would cause orbs of such magnitude to quit their spheres—leave systems, with such disastrous consequences, and come to this small world of ours, in order to guide human footsteps to some specific spot on its surface? If our planet was thrown on the surface of one of the fixed stars, it would amount to no more than casting a grain of mustard seed, or a grain of sand, on a great mountain chain, or a dew drop, into the great ocean.

It would be useless to inquire if a comet guided the wise men to Bethlehem. The nucleus of the comet of 1811 was fifty thousand miles in diameter; more than six times the diameter of the earth; the tail was one hundred millions of miles. Great bodies performing periodical revolutions in appointed orbits, would be as inadequate to guide the wise men, as Moses to teach the sublime spiritualism of the gospel of the Son of God; or Joshua, to write the epistles of the apostle Paul. Joshua and Moses performed their missions, but they could not fill the place of Paul and Jesus.—Comets can, and do, perform their regular periods in their orbits; but they are not of a nature to perform errands on the surface of our planet. Is it said by some, that God is omnipotent, and that

he can make such agents as he chooses serve his will? This is readily admitted; but God is endowed with infinite wisdom, and always chooses agents best adapted to execute his commands.

The Jews called all luminous objects stars; whether comets, meteors, planets, or fixed stars. In the present day, the word star has a variety of significations. It is frequently applied to persons of brilliant intellect or brilliant performances. It is consonant to reason, and it agrees with the character of Deity, to affirm, that a meteor, or a meteoric star, led the wise men to Bethlehem. This interpretation is not forcing the meaning of the scriptures; it is not bending the bible to suit our views, but is, evidently, what was intended to be conveyed by the Evangelist. It would be well for us not to attribute any of our peculiar prejudices to the writers of the sacred volume. We should rather let them speak themselves, than dictate to them what they should say.

There are some meteors which have their origin beyond the earth's atmosphere, and are, evidently, of a cosmical nature. Others have their origin within the atmosphere; sometimes, their origin may be near, or even on the earth's surface. It is reasonable to suppose, that a meteor of this last description is alluded to in the text. One of this class would present the appearance of a star;—it

would answer all the purposes of conducting the Wise Men. The employment of such a meteoric star would be in accordance with the simplicity of the miracles in the bible, and would not result in the disasters and inconveniences of causing one of the fixed stars, the sun of a great system of worlds, to leave its sphere, and execute such a mission. Great was the service rendered to the Wise Men by this meteoric star! There was an appropriateness in this mode of revealing to these philosophers the Saviour of the world. The science that they were occupied in studying becomes the means of conducting them to the light of religion.

Astronomical science, with its wonders, with its huge orbs, with its innumerable systems, and blazing suns, leads the mind, as the star led the Wise Men to Bethlehem, to the light of revelation, and to the resplendent glories of heaven!

Jesus Christ, the morning star of revelation, rising out of the profundities of past eternity, shining serenely in the majesty of his own divine nature, and communicating a mild and heavenly radiance, will lead every soul, who willingly and obediently follows him, from the gloom and darkness of sin, to the temple, the beatitude, and the glory of that God, whose favor is life, and whose presence is joy, and bliss indescribable.

There is a phenomenon connected with the crucifixion scene, recorded by the holy evangelists, which sustains such a relation to astronomical science as to merit a passing notice in this discourse.

The supernatural darkness which threw a sublime awe over the crucifixion scene, was one of the great events which marked the earth by the career of Him who came to save the human family. Infidelity has attempted to explain the fearful darkness which hung like a funeral pall over a guilty people, and an object of unparalleled agony, as the natural result of an eclipse of the sun. To show the fallacy of this, I will call your attention to the phenomena and laws of eclipses. This will serve to show the absurdity of the objection, and will present us with instances of darkness resulting from the operation of other than miraculous agencies.

In the transits of Venus and Mercury, that is, in their passing between us and the sun, apparently a dark spot is seen on the luminous surface of the orb of day. The cause of the phenomenon is, the planet in its orbit, passes immediately between the eye of the spectator and the sun; the rays of the latter are intercepted by the former; hence the appearance of a small dark spot. The occultation of the fixed stars frequently takes place. The moon is

much nearer to us than the stars, hence the former in its regular course passes between us and the latter, and the result is obscuration, which is termed occultation. This may be seen to the greatest advantage, during an eclipse of the moon. The satellites of Jupiter and Saturn frequently, in their orbital motion, pass behind the primaries, which for a time totally hides them from an observer. In this instance, an occultation of these satellites occurs. They may sometimes pass directly before the body of the primary, in which case they may be said to be projected on its body, obscuring a certain portion of the surface, and presenting the phenomenon of a sort of lunar transit. The satellites of Jupiter and Saturn, together with the satellites of the other planets, owing to the position of their orbits, may eclipse each other. So that the singular spectacle may be witnessed, of all of Jupiter's satellites, at the same time, either occulted, projected on the primary, or eclipsed.

There are strange coincidences and wonderful revolutions in the heavens. There are on record many instances in which stars have totally disappeared, presenting the appearance of a conflagration. These instances of the extinction of stars, real or apparent, remains a mystery in astronomical science.

The eclipse of the sun and moon, in the early periods of the world were regarded as omens pointing

to the most disastrous results. Such an occurrence would stop great enterprises, check the progress of battles, and change the plans of kings and the most renowned generals. Science has shown, that occurrences which were once supposed to portend change and evil, are the result of the natural operation of laws, as much so as the darkness of night and the light of day. And herein is seen one of the advantages of the diffusion of the light of science, in that it expels from the mind superstition and groundless fears. In explaining the laws of nature and the results of their operation, the mind, in simplicity, and as in the light of noonday, is led to a knowledge of the true God. Instead of alarms, needless fears, and appalling superstition filling the soul, it is filled with a sense of the wisdom, power, and goodness of the great and adorable Creator.

The eclipse of the moon is the shadow of the earth cast on it. The earth being globular, casts a long conical shadow; this shadow extends far beyond the moon's orbit; hence, when the latter passes into the shadow of the former, it is said to be eclipsed. Place a candle in the center of a dark room, draw a wire in a circle around it, on the wire move a top, and it will be seen to cast a tapering shadow streaming out toward the wall. If a wire in a smaller circle be drawn about the top, and if a smaller top be moved on the circular wire around

it; and if the small top move round the larger one nearly in the same plane that the larger one moves round the candle, then at certain times the small top will be seen to cast a shadow on the larger one, and at certain other periods to pass through its shadow. This simple illustration will convey an idea of the nature and cause of lunar and solar eclipses. The candle may represent the sun, the larger circle and top the earth and its orbit, the small circle and top the moon and its orbit. The moon revolves about the earth nearly in the plane of its orbit. The orbits of the two incline to each other about five degrees, or in strictness of language, the moon's orbit inclines about five degrees to the earth's orbit. To have an eclipse, the sun, moon, and earth must be in a straight line. There are only two points in the moon's orbit where this can take place; the points where it cuts the earth's orbit, called ascending and descending nodes. An eclipse of the sun must always take place at a full moon; of the moon, when new. If the orbits of the earth and moon coincided, then there would be a total eclipse of the sun and moon every lunation. As it is, a full moon may be either to the north or south of the ecliptic. As before stated, an eclipse can only take place when the three bodies, the sun, moon, and earth are in a straight line. From these statements, it is evident that the darkness of the

crucifixion could not have been the result of an eclipse of the sun, which can only occur at the new moon. The Saviour was crucified during the feast of the Passover, which always occurred at the full moon. How absurd to attribute the fearful darkness of that tragical occasion to an eclipse of the sun! Here is one instance of science rendering a most important service to religion. This, however, is but one instance, numerous others exist. Science is the greatest earthly ally to religion. Its services are manifold, and they would still be more numerous and more important, were it not for the needless fears and jealousies of the friends of religion.

The fact is demonstrated, that the darkness that overshadowed the hour of crucifixion was not the result of an eclipse of the sun. The question then arises, what was the nature of that darkness, and what was the cause of its existence? Did it extend all around the globe, enveloping it in gloom from pole to pole? Or, like the darkness of night, did it cover but one half of the globe? Or was it confined to the land of Judea? It would seem needless for it to have extended all over the planet on which we live; large portions of it then, as now, were uninhabited. The effect, or intention, would have been lost. It is not reasonable to suppose that it even extended, like the darkness of night, over one half of the earth. Had this been the case it

would have been noticed and recorded by some of the numerous writers of the age. An occurrence so singular would not have passed away in silence. Dionysius, falsely called the Areopagite, has been quoted, as affirming that he himself witnessed the darkness mentioned by the Evangelist. He exclaimed, "Assuredly, either the God of nature is suffering, or the frame of the universe is going to be destroyed." This man has been shown to be an imposter; he did not live till the fourth century, though he represents himself as living at the time of the crucifixion of our Saviour.

The following passage from the "History of the Olympiads," by Phlegon, the freedman of the Emperor Adrian, is presented by Eusebius; "In the fourth year of the two hundred and second Olympiad, there was an eclipse of the sun, much greater than any which had before been observed. The night was so dark at noon-day that the stars were perceptible, and there were such violent earthquakes in Bythinia that the greatest part of the city of Nicea was swallowed up by it." In this quotation, the darkness results from an eclipse of the sun. The darkness of the crucifixion was not the result of an eclipse, as has been demonstrated. It is said by the Evangelist, that "there was darkness over all the land." The land of Judea is evidently meant. The Jews crucified the Saviour, they were

guilty of the heinous sin of it; to them the divine displeasure, in supernatural darkness, was manifested. Connected with a great and tragical event, they understood its meaning.

As to the fact of this miracle it would be superfluous to say much; its truth rests upon the immutable basis on which rests the truth of the four Gospels. He who spake to that primeval darkness and ancient night, which hung in rayless gloom about the earth, and said, "Let there be light, and there was light," could as easily say to the light of noon-day, and to the luminous sun, Let there be darkness, and darkness would ensue. It is needless to inquire as to the medium or agency of this miracle. The same Being who spake light out of darkness, creating the agency and the light, could produce darkness amidst light, with or without agencies. Whether it be more in accordance with the divine procedure, for physical instruments to have been resorted to, will be left to the hearers this evening to decide. Taking either view does not destroy the fact of a miracle in the case. We find that the orbs of space, in their revolutions, moving in obedience to laws imposed on them by the Creator, frequently produce darkness of greater or less duration. The earth, by its shadow, produces the darkness of night; all the planets of the solar system, casting a shadow in an opposite direction

from the sun, have their darkness or night; the same is true of all the satellites. The radiance of the moon is but an antipode of a cone of darkness projecting in space in an opposite direction. Owing to the inclination of the earth's axis to the plane of the ecliptic, there is an alternation of six months day and six months night at the poles. If physical causes, called into existence by Eternal Omnipotence, and directed in their operation by Infinite Wisdom, produce such results of darkness as these, is it a thing incredible that the same Almighty Energy should produce the miraculous darkness seen at the crucifixion of the Saviour of the human race? That darkness being like the frowns of incensed and insulted Heaven over the persecutors and murderers of the Son of Man. A darkness as thick as that, and as indicative of the displeasure of God, rests on the mind of him who refuses to see the truth of those miracles recorded in the volume of inspiration. Let honest infidelity, convinced that it did not result from an eclipse of the sun, with a knowledge of the omnipotence of Deity as seen in astronomical science, with examples of darkness in various instances resulting from the orbs of space moving under the guidance of divinely imposed laws, take its stand near the Centurion, and witnessing the terrific darkness of the crucifixion scene, let it with the Roman officer,

exclaim, "Truly this man was the Son of God." The tragedy enacted corresponded to the signal miracle.

"There hangs all human hope; that nail supports
The falling universe: that gone, we drop,
Horror receives us, and the dismal wish
Creation had been smothered in her birth—
Darkness his curtain, and his bed the dust,
When stars and suns are dust beneath his throne.

He seized our dreadful night, the load sustained,
And heaved the mountain from a guilty world.
A thousand worlds so bought, were bought too dear."

There are two noted miracles in the book of Joshua, which, in a discourse like the present, on the Astronomy of the Bible, demand our attention.

In order to present these miracles clearly before your minds, I will quote from the sacred narrative: "Now it came to pass, when Adonizedec, king of Jerusalem, had heard how Joshua had taken Ai, and had utterly destroyed it; as he had done to Jericho, and her king, so he had done to Ai, and her king; and how the inhabitants of Gibeon had made peace with Israel, and were among them; that they feared greatly, because Gibeon was a great city, as one of the royal cities, and because it was greater than Ai, and all the men thereof were mighty. Wherefore, Adonizedec, king of Jerusalem, sent unto Hoham, king of Hebron, and

unto Piram, king of Jarmuth, and unto Japhia, king of Lachish, and unto Debir, king of Eglon, saying: Come up unto me, and help me, that we may smite Gibeon; for it hath made peace with Joshua and the children of Israel. Therefore, the five kings of the Amorites, the king of Jerusalem, the king of Hebron, the king of Jarmuth, the king of Lachish, the king of Eglon, gathered themselves together, and went up, they, and all their host, and encamped before Gibeon, and made war against it. And the men of Gibeon sent unto Joshua, to the camp to Gilgal, saying, Slack not thy hand from thy servants; come up to us quickly, and save us, and help us: for all the kings of the Amorites that dwell in the mountains, are gathered together against us. So Joshua ascended from Gilgal, he, and all the people of war with him, and all the mighty men of valor. And the Lord said unto Joshua, Fear them not, for I have delivered them into thy hand; there shall not a man of them stand before thee. Joshua, therefore, came unto them, suddenly, and went up from Gilgal all night.— And the Lord discomfited them before Israel, and slew them with a great slaughter, at Gibeon, and chased them along the way that goeth up to Beth-horon; and smote them to Azekah, and unto Mak-kedah. And it came to pass, as they fled from before Israel, and were in the going down to Beth-

horon, that the Lord cast down great stones from heaven upon them, unto Azekah, and they died: they were more which died with hail-stones, than they whom the children of Israel slew with the sword. Then spake Joshua to the Lord, in the day when the Lord delivered up the Amorites, before the children of Israel, and he said, in the sight of Israel; Sun, stand thou still upon Gibeon, and thou, moon, in the valley of Ajalon. And the sun stood still, and the moon stayed, until the people had avenged themselves upon their enemies. Is not this written in the book of Jasher? So the sun stood still in the midst of heaven, and hasted not to go down about a whole day."—Joshua x: 1—13.

There are two miracles recorded in this quotation; it will be best to treat them separately. I will, therefore, call your attention to them, in the order in which they stand. First, let us examine the history of the "great stones," and the "hail-stones," which descending from heaven, slew the enemies of Israel. The army of Baldwin, first, lost thirty men, near the place where this miracle occurred, "by horrible hail, terrible frost, and indescribable rain and snow." Yet, thirty men were few, compared with the multitudes slain by the "great stones," and the "hail-stones," as narrated by Joshua. Frost, rain, snow, and hail, could not

destroy multitudes in one day. Parkhurst defines the word in the original language, translated "great stones," and "hail-stones," as meaning, a stone in general. It may mean a hail-stone, a meteoric stone, a limestone, or sandstone. It is a generic word; its specific application is determined by circumstances. A shower of hail-stones would be inadequate to effect the results described in the sacred narrative; without miraculous size, or force, or both, being added to them. If a miracle were resorted to, which no doubt was the case, why may not some other than hail-stones, have been used, as executioners of the divine displeasure? When the blind man was commanded to go and wash his eyes, he was not to go to a sandbank, but to a pool of water. When "great stones" were cast down on the enemies of Joshua, we are guided by the analogy of miracles, to look, not for hail-stones, but for stones of some other character, of a nature, and fitness to accomplish the end; at least, to bear some relation to it. When the wine was to be made by a miracle of our Saviour, the vessels were to be filled with water—a liquid, bearing some analogy to wine, and not with meal, or flour, or mustard seed, or clay, or any solid substance. In the hail of Egypt, the flax, the barley, the herb, and tree of the field, were broken, and destroyed; the men, and cattle in the field, were smitten, but

nothing is said as to their death. The destruction of the harvest, was the object of this judicial miracle; the harvest was ruined. Had the object been the destruction of the men of Egypt, other miraculous agencies than hail would have been resorted to. When the first-born of Egypt were slain, the angel of death was commissioned; when Pharaoh and his host were destroyed, the waters of the Red Sea effected the dread catastrophe.—When the enemies of Joshua were destroyed by “great stones” from heaven, we are justified in affirming, that not hail-stones, but some other stones, more adequately adapted to produce the dire result, were used for the purpose, by divine indignation. What then was the nature of these stones, thrown down on the defeated and flying heathen? Whence did they originate? Where the magazine from which they were brought forth?

The phenomena of meteoric stones have been observed in all ages of the world. They descend, sometimes in showers, at others, one at a time, from the aerial regions. In the early periods of the world’s history, they were regarded as fearful prodigies. The theory, or theories, of these meteoric stones, will be explained in another discourse. At present, I will call attention to the fact of their appearance; some examples will be given. Livy, in the “History of Rome,” mentions many in-

stances in which showers of stones fell. One quotation from him may be sufficient: "On account of the other prodigies, the decemvirs were ordered to consult the books; but on account of its having rained stones in Picenum, the festival of nine days was proclaimed, and almost all the State was occupied in expiating the rest, from time to time." *

A shower of meteoric stones fell near Benares, in the East Indies, on the nineteenth of December, 1798. The most of them were buried about six inches deep in the earth. A light, proceeding from the sky, was seen, and a clap of thunder was heard, which was immediately followed by a noise resembling a heavy body falling in the neighborhood.

In 1795, a stone weighing as much as fifty or sixty pounds, fell in Yorkshire, England. The soil and a chalk rock were penetrated eighteen inches in depth. The earth was violently upturned by the fall. The stone being extracted, was found to be warm and smoking, and smelt strong of sulphur.

In 1803, a remarkable shower of stones fell in Normandy. The sky was serene, and a globe of a fiery appearance, of great brilliancy, was seen moving with rapidity through the air, accompanied by a rolling noise; a great explosion was heard, and a great many mineral masses, of the same na-

* See History of Rome, by Titus Livius. Book 21, Chapter 62.

ture as meteoric stones, were seen to fall. One of them weighed seventeen pounds and a half. In the year, 1492, a stone fell at Ensisheim, in Alsace, weighing two hundred and sixty pounds. It is now in the library of Colmar, and has been reduced to one hundred and fifty pounds, by fragments of it being broken off. *

A shower of these stones, a number of years ago, fell in the State of Tennessee. A specimen, I remember to have seen. Many more examples might be given. They have fallen in all ages, and in all parts of the habitable globe. There are instances, on record, in which they have proved destructive. A Franciscan monk was killed by one, at Milan, in 1706. A stone of this nature fell through a watchman's house, in the East Indies, and penetrated several inches through the floor, which was of consolidated earth.

It is much more probable, that a shower of these stones falling upon the enemies of Israel, slew them, than that ordinary hail, was the agent of the catastrophe. The miracle of the destruction, is not the question of discussion; but the agents by which it was effected. A great shower of these meteoric stones, may have fallen upon the foes of Joshua, while they were retreating, and when they were in crowded masses, and resulted in great destruction

* See *Celestial Scenery*, by Thomas Dick, LL. D.

of life. This conclusion is in accordance with the etymology of the word translated "hail stones," and with the Divine procedure in operating miracles.

It is altogether probable, that the Ancile, or Sacred Shield, that fell from heaven, during the reign of Numa Pompilius, was a meteoric stone. The same, probably, was the nature and origin of the celebrated Palladium of Troy. There is very little doubt, that the image of Diana of the Ephesians, was a meteoric mass, which had fallen upon the earth.

The town clerk of Ephesus, in an address to the people, said: "Ye men of Ephesus, what man is there, that knoweth not how that the city of the Ephesians is a worshiper of the great goddess Diana, and of the image which fell down from Jupiter?" Not the writer of the Acts of the Apostles, but the town clerk, affirms that the image fell down from Jupiter. The passage then is uninspired; it was spoken by a heathen, and we are under no obligation to believe it to be true. Jupiter, of course, has only a fabulous existence. That which was called the image of Diana, no doubt, fell to the earth. The fair inference is, that a meteoric mass falling, and bearing some rude or fancied resemblance to an image of Diana, was by the superstition of the age and country, regarded as

having come from the gods. An acquaintance with astronomical science, would have saved the ancient Romans, Trojans, and Ephesians, from much superstition, and needless idolatry, respecting their "Sacred Shield," their Palladium," and their "Image."

Second; let us next examine the account given of the sun standing "still upon Gibeon," and the moon, "in the valley of Ajalon." The ordinary objection of infidelity to this miracle is, that the sun is stationary, and that the earth moves, and hence, that Joshua should have commanded the latter, and not the former, to stand still. To this, it might be replied, if it merit a reply, that in all language, not strictly scientific, it is said the sun rises and sets; that occurrences are described according to appearances. The sun appears to rise and set, and hence, in ordinary language it is so affirmed. Light, in a miraculous manner, was produced by the command of Joshua. The appearance, to the spectator, was as though the sun and moon stood still; hence, Joshua in operating this miracle, whereby the light was furnished, used language in accordance with appearances. In so doing, the people understood him; otherwise, they would not; it would have required a miracle, as great as the one which produced the light, to have caused them to understand the nature of the solar

system, the laws of astronomical science, and the laws governing light.

But did the sun stand still? Did the earth stand still? The sun is in motion as well as the earth; it has a triple motion. First, the great central luminary turns on its axis. In the next place, it performs a revolution about the centre of gravity of the solar system. Then it, with all the orbs of the system, is performing a stupendous revolution around some unknown centre; "in Bessel's opinion, we may move in this immense orbit thrice as fast as the earth travels in its planetary ellipse."—So that the sun has as much intricacy, or as many different kinds of motion, as the earth.

So far as the objection of Joshua commanding the wrong body to stand still is concerned, it has no force. There is not an orb, probably, in space, that is stationary. The fixed stars, as they are usually denominated, are, as has been ascertained, in respect to many of them, in motion. To speak of the sun absolutely being fixed in space, or standing still, betrays as much ignorance of astronomy, as has been attributed by the objection to Joshua. Did the sun or the earth, either of them stand still? Was the earth stopped on its axis? An examination of the subject, I think, will convince us that it did not. The results would have been too disastrous. That, guided by the analogy of the other

miracles recorded in the sacred volume, would not have been the way in which the Divine Being would have proceeded to accomplish the desired end. Had the earth been made to stand still on its axis, such is the complicated nature of the mechanism of the solar system, that a disastrous shock of ten-fold more than the violence of earthquakes, would have been felt through all its parts; even the astral systems would have felt its violence. On earth, the consequences would have been disastrous in the extreme. There would have been a deluge of very considerable extent, and of no ordinary consequences.

An humble illustration, as a rapidly turning grindstone, with water on it, would evince the nature of this, on its being suddenly stopped. The earth moves with the velocity of one thousand miles every hour on its axis. A car moving at the rate of sixty miles per hour, being suddenly checked, produces destructive consequences; a horse at full speed, on being suddenly checked, throws the rider far before him. The sudden stopping of the globe in its diurnal motion, would have hurled from their positions, houses, trees, and rocks. Storms of trees, rocks, and masses of earth, would not only have, with whirlwind violence, destroyed the enemies of the Jews, but the Jews themselves, together with all that had life on the earth. Many of earth's riv-

ers, changing the direction of their currents would have, with the violence almost of cataracts, rolled their waters toward their sources. The tidal waves of the ocean would have been deranged; the trade-winds and the various aerial currents would have been turned out of their courses or annihilated. The mind shudders at the contemplation of such a catastrophe. One can scarce breathe, when trying to realize such an occurrence. The earth is a part of that august and sublime machinery of the vast created universe. One wheel or orb affected, extends to all parts of it. In reference to the physical universe, we may in truth and verity, say:

"All are but parts of one stupendous whole."

The child and the idiot may play with fire-brands about the magazine of powder, but those of better experience and judgment would regard it as death so to act. Those unacquainted with the nature of astronomical science may talk of deranging the solar system, and breaking that nice connection and dependence seen in that sublime net-work of worlds, spread out in so much delicacy and beauty of appearance in the voids of space. But the enlightened mind would, on the occurrence of such a disaster, expect that the reign of ancient night, of old anarchy, and dread chaos, in three-fold darkness, ruin, and confusion, would take the place of

order, light, and life. Had the earth been stopped on its axis, one part of the inhabitants of the globe would have witnessed the singular spectacle of a setting sun continuing through the whole length of a day; another part would have witnessed its rising prolonged to an equal extent of time. One-half of the globe would have been enveloped in a night, instead of twelve or twenty-four hours in duration. The terror and inconveniences of a double night would have been imposed on one part of the human family to benefit Joshua and his army. The many would have been punished to confer a benefit on the few. No good parent would confer favors on one child at the expense of all the others. Man might operate miracles, had he the power, in his blindness, on the principle of stopping the earth on its axis; and it might be characteristic of his mode of procedure. But we are warranted in affirming it from the sacred volume, that God, endowed with infinite benevolence and wisdom, would, in performing miracles, proceed on no such blind and partial plan. Wisdom and benevolence are engraven on all his miracles: wisdom, conspicuous in their simplicity and adaptation; benevolence, in promoting the happiness of those for whom they were performed, and conflicting not with the equitable interests of others.

How was that phenomenon of light produced—represented by the sun and moon standing still? or, how were the sun and moon made apparently to stand still? The laws of light may here instruct us. Light proceeds in straight lines, if it meet no obstructions. The rays make a number of angles under certain conditions; they never make curves in passing through a uniform medium. But in passing through a medium, the density of which uniformly increases or decreases, curves are made; these are proportioned to the increase, or decrease, of the medium. Examples illustrative of this may be seen in the deceptive depth of clear streams of water. Experiments with a fixed object in the bottom of a vessel, filled with water, are familiar to all. The atmosphere increases in density towards the surface of the earth; owing to this fact, objects, such as the sun or moon, appear elevated above their real position. The greater the condensation, the greater the curves made by the rays of light. Captain Scoresby relates that while he was traversing the Polar seas, his ship, for several days, had been separated from his father's, and he had been anxiously looking out for it; at length, one evening, he saw it, to his surprise, suspended in the air in an inverted position, traced on the horizon. He pursued the visionary ship until he actually found his father's vessel. The inverted vessel, painted on

the horizon, was the reflection of his father's ship: the extreme condensation of the atmosphere was the cause of this phenomenon.

Mrs. Somerville remarks, that a friend of hers, standing on the plains of Hindostan, saw the whole upper chain of the Himalaya mountains, which before had been invisible, start into view, from a sudden change in the density of the air, occasioned by a heavy shower of rain, after a long, dry season. We are told that some Hollanders, wintering at Nova Zembla, 1796, were surprised to see that the sun rose seventeen days in advance of its time; this was determined from calculations made in reference to the altitude of the pole. The sun was really seen when it was five degrees below the horizon. The refraction of the cold, dense atmosphere, caused that, which, in the estimation of many, might have seemed a miracle. This extraordinary condensation of the atmosphere would have caused the setting sun to remain visible as long after it was really below the horizon, as the rising sun was visible before it came to the horizon. Thus, in those Arctic regions, owing to the laws of light, the going down of the sun is greatly prolonged; its rising is equally hastened. The "Parhelion" or mock sun, the "Mirage," the "Fata Morgana," and the "Looming," might be referred to as illustrative of the wonderful results

flowing from the laws governing the refraction of the rays of light. These cases cited, and these phenomena, may serve to convince us, not only of the possibility, but of the probability, of the light of the sun and the moon being extended to Joshua and his army by the condensation of the atmosphere and the refraction of the rays of light. Should it be objected and be said that this would not be in accordance with the command of Joshua, it may be replied, that it would produce all the appearance of the sun and moon standing still. There must have been much of appearance about the miracle. The earth and sun each have a triple motion—all of these motions were not suspended. The causing the sun to stand still would not have occasioned the miracle. Hence, by the sun standing still it would have to be understood of the earth. If, by the sun standing still, we are to understand that the earth was stationary, we had just as well say, that the rays of light, owing to a sudden and miraculous condensation of the atmosphere, presented the phenomena, or reflection, of a stationary sun and the light of day. This would be speaking in accordance with the impression made on the senses. It would be the same as speaking of the sun setting and rising. It would be on the principle of the ship seen painted on the horizon, or the Himalaya mountains suddenly becoming visi-

ble; or analogous to the *Mirage*, or *Fata Morgana*. It is not a question here whether Joshua did or did not perform a miracle. That is not a debatable point. He did perform a noted miracle; the results of it were beneficial to himself, and disastrous to his enemies. The question is as to the nature or mode of the miracle. It is here contended that it was brought about by the agency of the atmosphere and the laws governing light. The simplicity of this accords with the character of the Divine Being. Neither the sun nor the earth is stopped. There is no derangement of the mechanism of the solar system, nor of the great frame-work of the created universe. Had either of those orbs been stopped in its course, ruin must have ensued, or scores of other miracles would have been necessary. It is frankly confessed that fifty miracles could at one word of the omnipotent One have been performed. But was this done? Deity could have created a sun and moon for the special occasion of Joshua completely overthrowing his enemies. But he did not so do. The miracles of Deity are all on a scale in harmony with his mode of proceeding in nature. The same august Being who called the material universe into existence and imposed laws on it, performs miracles. There must be uniformity in all his actions. I must here be allowed to enter a solemn caveat against the common theolog-

ical definition of a miracle—that it is a temporary suspension of the laws of nature. No one would call in question the omnipotence of Deity. He could perform miracles with or without the agency of the laws of nature—with or without an intervening medium. Miracles may be performed by a suspension of the laws of nature. They might be performed by the creation of new laws. To say that miracles can only be performed by a suspension of the laws of nature, is to limit the power of Deity, and to make him dependent on material laws, whereas they derived their existence from him, and are in all respects subservient to his will. Miracles may sometimes result from the laws of nature being intensified, or made more potent; at others, in their force being diminished. They may be occasioned by a combination of the results of different laws in operation. The modification of one cause, or law, by another; or, on the other hand, the rendering more intense one by the operation of another, may alike produce, by the bidding of divine power, miraculous results. To say that Deity performs miracles only by suspending the laws of nature, is the same as to say that he resorts to agencies in their production only in a negative sense. Whereas, the Saviour of the world declared that he cast out devils by the Spirit of God—not by setting aside, but by using, the

agency of the Holy Spirit. The miracle that Joshua performed afforded supernatural day, or light, whereby he achieved a great and brilliant victory—overthrowing and discomfiting his enemies. The same miracle, understood according to the teaching of revelation and science, produces a blaze of light, whereby the infidel foes of religion are dispersed and confounded, and the character and governmental procedure of the Divine Being are brought prominently and harmoniously into view.

It will be in harmony with the object of this discourse to notice the Sun-dial of Ahaz.

Hezekiah had fallen sick, and the announcement of the prophet to him was, “for thou shalt die and not live.” On repentance, however, his life was prolonged. He desired a sign of this, “and Isaiah the prophet cried unto the Lord; and he brought the shadow ten degrees backward, by which it had gone down in the dial of Ahaz.” Instruments for marking time were originally exceedingly simple and elementary. The sand-glass, the water-clock, and the shadow of different objects called a sun-dial, are examples. The modern watch and clock are great improvements on these. There were different kinds of sun-dials among the ancient nations. Some think that the dial of Ahaz was a

staircase, the steps marking off by their shadows portions of time. Others think it was a pillar erected on a level pavement. Grotius says it was a concave hemisphere with a globe in the midst, the shadow of which fell on the different lines engraven on the concavity, thus telling the hours, or marking the lapse of time. This, it has been thought, was introduced from Babylon, and was like what the Greeks call a Scapha. It is said that the most ancient sun-dial known was in the form of a half circle, hollowed into a stone, and the stone cut down to an angle. In this miracle we are not to suppose that the earth, reversed in its orbital course, performed ten backward revolutions. Nor are we to suppose, that reversed in its motion on its axis, it performed ten diurnal revolutions from east to west, or that it turned in the same direction ten degrees. By recurring again to the laws of light we may have a satisfactory explanation of this miracle. There are circumstances connected with the atmosphere, of a nature, under the direction of the energies of the omnipotent One, to effect all the miraculous results recorded in the sacred volume in relation to the sun-dial of Ahaz. We find that in every effort to investigate scriptural topics in which there are apparent discrepancies with the principles and teachings of science, that instead of the Christian having any grounds to fear, he has the addi-

tional evidence of the truth of the bible, from the fact that its teachings are in harmony with the wonderful discoveries of science. It is no more to be wondered at that the great Author of nature should produce atmospheric results in the form of astounding miracles, than that the owner of a clock, or watch, should turn the hands in a retrograde motion to the point to which he would desire. The one is a miracle, the other is not; the miracle is incomprehensible to the skeptic; both would be, if related to an Esquimaux. The creating acts which gave existence to the atmosphere, to light, and the laws governing light, were miracles just as great, each of them, as the phenomenon of the backward course of the shadow on the dial of Ahaz.

There is a point connected with the astronomy of the first chapter of Genesis, to which I wish to call your attention.

On the fourth day of creation it is said, "God made two great lights; the greater light to rule the day, and the lesser light to rule the night." In the beginning of the present creation, God created light; the sun was made on the fourth day. This seems contradictory. The whole solar system was evidently created at the same time. Such are the connections and relations of all its parts, that we could adopt no other conclusion. The annihilation of any

one of the orbs of the solar system would produce ruinous confusion. We cannot suppose that the earth and moon were placed in their orbits before the sun was called into existence. Or that the earth had an existence before the sun and moon. The whole solar system, sun, primary planets, satellites, comets, and all the accompanying appendages, judging from analogies and relationships, must have emerged from nonentity into a splendid existence, under the omnipotence of the same creating fiat. The system may have expanded into its present beautiful proportions and harmony, from a created seminal beginning, even as the rose unfolds its blushing glories from the smallest nucleus of the bud. In the history of the creation of light, and the sun, reference may be made with propriety to the new theory which has been started, and which has many advocates in the scientific world. Newton and his successors supposed light to be a material substance; they supposed it was emitted from self-luminous bodies, such as the sun, or the stars. This theory has been termed the "emanating" or the "corpuscular" theory. There are many objections to it; these are of an irreconcilable nature. It will not, however, be advisable to either enumerate these, or to point out their force and bearing, in a discourse like the present. The curious and investigating hearer may consult works

of a purely scientific character, in relation to this subject.

The "undulatory theory" is the new one to which allusion has been made. It has the merit of harmonizing beautifully with the account given in the first chapter of Genesis, of the work of creation. It is adopted as true by a considerable portion of the scientific world. The following quotation will sufficiently explain the nature of the "undulatory theory": "It is supposed that the particles of luminous bodies are in a state of perpetual agitation, and that they possess the property of exciting regular vibrations in the ethereal medium, corresponding to the vibrations of their own molecules; and that on account of its elastic nature, one particle of the ether when set in motion communicates its vibrations to those adjacent, which in succession transmit them farther off; so that the primitive impulse is transferred from particle to particle, and the undulating motion darts through ether like a wave in water." If this theory be true, light may have been created before the sun; or it may have had an existence before the orb of day made its appearance to the planet on which we live.

The sun is an opaque body, it is not a globe of fire; it may be the abode of intelligent creatures like the human family, or of beings higher in the scale of existence. It is invested with a luminous

atmosphere, on which floats phosphorescent clouds; these clouds in some way produce the phenomena of light and heat. It is evident that the sun was created when the earth was. The former was probably not invested with its luminous clouds and atmosphere till the fourth day of creation, and hence would not be visible to the latter prior to that time. The day on which, from these circumstances, the sun was visible, may, with propriety, according to appearances and modes of human speech, be said to be the time on which it was made. The moon shines by reflection of the sun; the former would become visible by the latter. Hence with propriety it might be said that the moon was made on the fourth day of creation.

This explanation, which must be satisfactory to all candid minds, agrees with the "nebular hypothesis," or that theory which explains the genesis of the solar system. This theory goes on the ground that the whole solar system was once in a fluid, or even in a gaseous state, indefinitely expanded; and that by the compression, or consolidation of the gravitating force, and the rotation of the whole mass on its axis, that planet and satellite after planet and satellite were thrown off, until the solar system was reduced to its present structure and relations. According to this theory, when the last planet, which was Mercury, was thrown off, the

central portion of the original mass, which is the sun, would be surrounded by the remaining light particles, producing the phenomena of an atmosphere and clouds. Whatever weight may be given to this theory, one truth is manifest, that the first chapter of Genesis agrees with the teachings of astronomical science. A fair interpretation of the sacred text, and a correct and thorough knowledge of astronomical science, will convince us, that instead of discrepancy between them, there is a divine harmony.

The church-edifice in which we now worship, in common with all other unprotected buildings, is in danger of being stricken with lightning. During every thunder storm that passes over this city there is more or less danger of this. The officers of this church contemplate erecting a "lightning rod" on this edifice. This done, and we have here an example of science protecting religion. The "rod" would then, silently, and harmlessly, convey from every passing cloud the destructive electrical agent into the earth, where it would be dispersed. Then science, like a guardian angel, would protect the edifice and the worshipers from frightful and destructive explosions. The Church of Christ may be regarded a great world-temple, a sublime spiritual edifice. Science, as a "lightning rod," extending over this great world-temple, and shooting lu-

minous spires far above its topmost pinnacles, conveys from every dark and threatening cloud of infidelity sweeping over it, the destructive elements, and disperses them powerless and harmless at the base of the divine edifice. Religion and science thus combined and thus harmonizing, we may repeat with emphasis the language of the Psalmist, "Walk about Zion, and go round about her, tell the towers thereof. Mark ye well her bulwarks, consider her palaces; that ye may tell it to the generation following."



S E R M O N I I.

LOCALITY OF HEAVEN,
CONSIDERED IN RELATION TO ASTRONOMY.

"And be ready always to give an answer to every man that asketh you a reason of the hope that is in you, with meekness and fear."—1 PETER III: 15.

PETER clearly defines it as a duty, and strongly enjoins it, that we should be ready to give a reason for the hope that is within us. This reason is to be given with meekness and fear. It is made the duty of Christians to have a belief, or faith, with respect to all subjects connected with our holy religion. Every topic revealed in the bible is of importance,—so much so that it should be investigated, and distinct opinions should be formed concerning it. It is not merely a subject of choice with us whether or not we may investigate such themes—it is a sacred duty binding on us; our religious enjoyment and growth, as Christians, in spiritual graces, depend on the performance of

such duties. It is not excuse sufficient, to say that many points in the bible are obscure and difficult of comprehension. We may, by a due dependence on the guidance of the Holy Spirit, a proper exercise of our intellectual powers, and a suitable resort to helps in the form of comments and expositions, comprehend the truths of the bible. If not, why were they revealed to us? The Author of revelation would not mock the human family, so far as to reveal subjects which it would not be lawful or profitable to investigate. It is not only made the duty of Christians to have a belief concerning those things revealed to us in the sacred volume, but we are to be ready to give a reason for the hope that is within us. We are to be able to give the reasons and arguments which prove the truth of those things which we believe. It is a Christian duty to be informed on those topics. In short, Peter requires intelligent, enlightened Christians—such as believe, because they have reasons for their faith. He that has correct views on all subjects revealed in the volume of inspiration, can render, to his own understanding, good reasons for the entertainment of such thoughts, and has found that which will prove to himself a pearl of great price. He that can give good reasons to others for his hope, does good service to them and to the cause of religion. Religion is never more honored in such cases, save by

a good practical life. Intelligence, charity, and practice are the leading constituents of the religion of the bible. Bigotry, a blind, selfish zeal, fanaticism, and superstition may be in high estimation among men, but they are no more like the pure and holy principle of true religion, than a demon is like an angel. A scriptural, enlightened, and intelligent belief in a future state, exerts a controlling influence over the happiness of the human family. The thought of Heaven falls upon the spirit, as falls the dew of evening upon the tender plant, the green herb, and tender flower. Such a thought comes to the heart like the visit of an angel, communicating a home-felt feeling and delight.

Heaven, as revealed in the sacred scriptures, considered in relation to astronomical science, will be the theme of the present sermon.

On reflection, it must be manifest to all, that there is a propriety in connecting astronomical science with our contemplations of Heaven. The scriptures, of course, are the great medium through which we are to view that world of glory and immortality, appointed as the home of the righteous. But there are other media which may be used in connection with and auxiliary to them, for the same purpose. We are justified, in making

such a resort from the sacred volume. In contemplating Heaven in relation to astronomical science, the intention is to cause science to aid revelation. The physical universe will never be annihilated. This may be positively affirmed, without an air of dogmatism. It may be regarded as one of the manifest truths taught in the bible. The time was when it was believed that the sun, moon, stars, and earth would all, at the Grand Assize, be blotted out of existence. A more thorough and liberal appreciation of the meaning of the scriptures has banished from the minds of intelligent Christians such a belief. Change in respect to form, and particles in their relation to each other, in respect to time and space is the law and nature of all created objects in the physical universe. But destruction, or extinction, or annihilation will not be the result in respect to any part of it. The scriptures teach us that the earth was destroyed once by water, in the deluge. They likewise inform us that it will be destroyed by fire at the general judgment. Scripture may interpret scripture. The past destruction will instruct us as to the nature of the future. When destroyed by water, the earth, or a single particle of matter, was not annihilated : neither will it be at the final conflagration. That which seems destruction is but a mode of transition into another form and state of existence—even as

the decay and death of the body are a mode of change or passage into another and superior condition of existence. There is, if the forms of expression carry not along with them a contradiction, a metempsychosis and transmigration of matter. The old philosophers, struggling and groping in the first dawning of the world's twilight, erred in the application of their terms; they supposed it was mind, whereas it was matter, which was subject to such marvelous metamorphoses. The created physical universe has undergone many changes; some of them, doubtless, great and disastrous: it will, no doubt, be subject to many more. But not an orb, not a particle of matter, has been annihilated. The whole universe, in all the astonishing mutations to which it has been subjected, has not been diminished in a single tittle, or iota, or in the minutest particle of matter. Like mind, matter is indestructible, save by the will of Deity. The universe is immortal. It will exist co-eval with the soul, with angels, and with the great and august Being by whom it was created. Hence it may sustain a relation to heaven; it is possible for it to be connected with the home of the redeemed. Will the hearer, this evening, be willing to sever himself from old prejudices, and be guided by revelation and the analogies of creation? May the unerring Spirit of all truth, with its holy light

divine, lead our willing and teachable minds in the paths of light, saving us from bewildering darkness and the devious ways of error, till we attain a correct view of the nature of Heaven, as taught in the volume of revelation; so that, in desire, zeal, and action, we may be quickened to strive for the attainment of a mansion in that abode of holiness, peace, and immortality!

The apostle speaks of the redeemed ones, after the resurrection, sustaining a relation, in degrees of glory, to the stars of heaven. If there exists a relationship of some sort between the stars and the redeemed, surely there is a propriety in considering the abode of the redeemed in relation to astronomical science, which treats of the stars in common with all the bodies of space. We sustain a most important relation to matter in this life—the earth, the sun, the moon, and the atmosphere are connected with and adapted to our present mode of existence. Material organs, and a material body are necessary to the existence of intercommunication of mind. We cannot subsist without material food, clothing, light, and heat. We sustain a relation to matter in this life—we will in the life to come. Raised, material bodies will be the abode, in a future life, of our spirits. In that future life we will sustain a relation to the created physical universe. With that universe Heaven

will have a connection. If this be true, there is an undoubted propriety in considering Heaven in relation to astronomical science. But the scriptures themselves connect astronomical science with heaven. We read of the fowls of heaven, of the stars of heaven, and of the third heavens. By the first, we are to understand the circumambient atmosphere; by the second, the regions of space, filled with the bodies treated of under the head of astronomy; by the third, the abode of angels, the home of the redeemed, and the place where God especially manifests his glory. Those regions, filled with orbs, of which astronomy treats, are called heaven; the atmospheric regions are likewise a part of the domain of astronomy. Then the orbs and intermediate spaces, which constitute the province of astronomy—or, which, in strictness of language, are astronomy—in the scriptures, in common with the abode of Deity and the home of the soul, are called heaven. This is connecting astronomical science with heaven. May we not say in truth that the scriptures connect astronomical science with the locality, in some sort, of heaven? What the scriptures have joined together let no rash zeal put asunder. It may be I am in danger here of giving offense to those who are guided by prejudice and not by reason—by preconceived opinions, originally suggested by a morbid fancy, and not by the

sacred scriptures—or by superstition instead of revelation. Should it be done, it would be a source of sincere regret. Let such bear in mind that this discourse is not addressed to them. It is intended for enlightened piety. With such there is no danger of giving offense. There is a pleasure and an elevated satisfaction in communicating with minds chastened and subdued by piety, enlightened and refined by culture, filled with charity and the love of truth. Let us, with a noble brotherhood of feeling, proceed in the investigation of the sublime and imposing subject before us.

At present, we are denizens of a planet called the Earth, which is as an island in the all-encompassing ocean of space. Viewed, without reference to the bodies of space, it seems almost a universe within itself. Its great rivers, lakes, mountains, islands, continents, and oceans, considered as parts of a whole, leave an impression of vastness on the mind. But it is only one of a class of bodies; some of which, are more than a thousand times larger than it is, which constitutes a part of a group of aerial islands, called the solar system. In addition to orbs like the earth, which are called primary planets, there are in the solar system, satellites, rings, aerolites, asteroids, and comets, together with the majestic central luminary, that is five hundred times larger than all the others taken

together. The area of space occupied by this system is enormous; the number of bodies almost incredible, including comets, the amount of matter is beyond human comprehension. An approximate idea of the magnitude and distances of the parts of the solar system, may be given by borrowing the illustration of a distinguished living astronomer.

“On a level surface, place a globe two feet in diameter, which will represent the sun; at eighty-two feet distance put down a grain of mustard seed, and you have the size and place of Mercury; at the distance of one hundred and forty-two feet, place a pea, which will represent Venus; at two hundred and fifteen feet, another will represent the earth, man’s world and home; a pin’s head at the distance of three hundred and twenty-seven feet, will give you the place of the planet Mars; at five hundred feet from the sun, eleven small grains of sand will point out the position of the Asteroids; at a quarter of a mile a middle sized orange will represent the magnificent Jupiter; Saturn, with his rings, may be represented with a lesser orange at two fifths of a mile; a cherry at three quarters of a mile will stand for Uranus; and at a mile and a half, Neptune may be represented by another cherry. The solar system covering so great an area of space, embracing such a number of bodies,

many of which are of enormous magnitude, may the more easily be conceived of by the mind." But the solar system is not the universe. In one great system of stars, called an astral system, and which may be said to be our astral system, from local relations, there are no less, as has been in a previous discourse stated, than eighty or one hundred millions of suns—that is solar systems. What an assemblage of worlds! What an area of space they cover! Yet this is not the whole universe! Three thousand great astral systems, like this, have been revealed by the telescope. Even all this may be only a part of the universe. Each increase of the power of the telescope, heretofore has enlarged to human vision, the created universe. Could that instrument be doubled, or even trebled in the extent of its powers, the size, no doubt, of the created universe would in proportion be enlarged to the view. And even that might only be one section or portion of that vast frame of created worlds, which is a visible and physical representation of the omnipotence of that unseen Being revealed to us in the sacred scriptures.

But however great the created universe is, yet it has form and limits, it is finite; it, as a whole, has shape and bounds, as much as an astral system, or as a solar system, or as a planetary system. Space is infinite, it has no limits, it has no boundary.

There is in it no mountain chain, no great ocean, no Chinese wall, no pillars of Hercules, no Dan or Beersheba, beyond which, limitless tracts and fields of space do not sweep far, far away, one beyond another. Space then, with all of its dread incomprehensibilities, is infinite, in the true and literal sense of the term. The created universe, with all its wonders, its brilliant splendors, its huge orbs, and vast distances, is finite—has limits and bounds. Where then is Heaven? Is it within the limits of the garden of the created universe? Or does it lie beyond, in the untenanted voids of space? It must be somewhere; it must either be in the limits of creation, or else beyond, in the voids of space.

In those outer voids of space, there is naught but space, desert, tenantless, an unreclaimed waste. There is nor light, nor life there; no sun, no moon, no star is there to shine or twinkle, but it is the abode and home of silence, of darkness, and of utter nothing. No beauties of spring, no change of seasons, no coming on of "grateful evening mild," no roseate hues of twilight, no dewy morn is seen there, or enjoyed. The hymn of devotion, the song of the redeemed, or the hallelujah of the glorified ones, never sounds in those realms of silence. The song of the bird, the chirp of the insect, the æolian strains of the zephyr, never break the death-deep silence which reigns there.

That is no place for the redeemed, that is no place for devotion, that is no place for immortal glory. The mind turns away from the contemplation of such a scene with shuddering awe. Heaven cannot be located there. We must look elsewhere for the eternal home of the redeemed.

By this, we have arrived at a negative conclusion. We have determined where heaven cannot be. In those outer voids of space beyond the created universe, we are assured that heaven does not exist. Thus far, we have certainly accomplished something in the investigation of the subject under consideration. Then, using the terms in a metaphorical sense, let us ascertain our latitude and longitude, and in meekness, and in the love of the truth, pursue the investigation of the august theme before us, with the zeal and confidence of the Great Mariner, when he was sailing in quest of the New World, which then he had not seen, but which afterwards he discovered.

I will now proceed to detail some of the prominent theories which have been entertained in the religious world by pious people in relation to heaven.

Every man who is not an idiot, or an atheist, has some theory of heaven. Those who think the most, and who have illuminated their minds by a careful

and sincere perusal of the scriptures, of course, have the more accurate theories. That is, they approach nearer in their views to the original nature of the world of glory.

Not only has every man his theory of heaven, but many are exceedingly bigoted in contending with a sort of death-like tenacity for their favorite theory, be it what it may, or be it like what it may; and in opposing with uncharitable and bitter feelings the views of all others in relation to heaven, however honest and sincere, which may differ from theirs. On a subject where charity ought to characterize the opinions and investigations of all, too frequently is seen severity; instead of toleration, bigotry; and instead of liberal sentiments, contracted selfishness.

But let us proceed to enumerate some of the theories which have obtained in the Christian world. In so doing, some of the more prominent ones only will be noticed. In this enumeration we may begin with the progressive ascension theory. This consists in an infinite series of changes, from one platform of glory and blessedness to another. This is a beautiful theory. Adorned with material charms, it presents many phases of attraction. The various worlds of space are supposed to be the abodes of the redeemed. After a great while of felicitous residence in one world, by an ascent of vir-

true, capacity, and happiness, there is a remove to another. And then, in a similar manner, after a long abode, there will be another ascent; and thus through endless duration there will be a transition from world to world. At each remove it is supposed there will be novelty, variety, and every charm, to prevent an existence of felicity from cloying. Each ascent, it is supposed, will be a remove into a higher scale of being. Each world in succession will be superior to the former one inhabited. This will be an eternal progress through the countless orbs of space, accompanied by every circumstance of happiness and glory. There is much of the poetry of religion in this. It is the offspring of a brilliant imagination, rather than the sacred scriptures. It is better suited to amuse the mind at present in pleasing contemplation, than to suit actual enjoyment and possession. This theory has much resemblance to what is taught in the sacred scriptures. Heaven, in one sense, will consist in an infinite series of ascensions. But these ascensions will be moral and spiritual. The future existence of the redeemed will be characterized by an endless series of developments. That existence will be an eternal progression toward infinite perfection in holiness, bliss, and glory; a constant approximation toward the divine nature, yet never attaining it. This will be an intellectual and moral progres-

sion and development. It will not be outward, marked by worlds of varying and increasing splendor; but inward, denoting changes, in respect to the spirit. In that inward mental universe in the soul of each one, will there be ascension and progression from one stage of glory and happiness to higher stages of glory and happiness.

It has been contended by others, that each sun is the heaven of its respective system. For instance, the sun is the heaven of the solar system. The inhabitants of all the planets, and of the satellites, if there be any in them, after death are supposed to ascend to the sun, and dwell in it forever, as a final home. Each star being a sun, and from analogy being engirdled with planetary worlds, as our sun, is supposed to be a heaven. Thus, according to this theory, there are as many heavens as there are stars. In connection with this theory it may be stated, that the sun is an enormous world, of great splendor, and capable of making intelligent beings happy to an extent much greater than the globe on which we now live. This theory would multiply heavens to a degree that would startle its advocates, if a few facts in astronomical science were duly reflected on by them.*

* During the delivery of this series of sermons, at one time it was stated in some of the newspapers, and quoted by others in various parts of the country, that I located heaven in the sun. This I never did. I doubt not

A class of theologians have contended that the voids of space, that is, the interplanetary voids, are the regions where the redeemed enjoy the felicity and glory of a future life. That the spirits freely move, or float through aerial and ethereal regions, having a knowledge of us, easily and constantly beholding us; on the other hand, invisible and unknown to us. This theory assumes that the spirits of the deceased may even be around us. This view would seem to detach the glorified spirits from the presence of angels and of God.

The earth on which we live, after the general conflagration, it is held by some, will be the heaven of the redeemed. The following scriptures, by its adherents, are considered as authority for this theory: "Nevertheless, we, according to his promise, look for new heavens and a new earth, wherein dwelleth righteousness."—2 Peter iii: 13. "For behold, I create new heavens and a new earth; and the former shall not be remembered, nor come into mind."—Isaiah lxv: 17. "For the earnest expectation of the creature waiteth for the manifestation of the sons of God. For the creature was made subject to vanity, not willingly, but by reason of him who hath subjected the same in hope. Because the creature itself also shall be delivered from

the mistake was originally made innocently. I did not then trouble myself to correct the misrepresentation.

the bondage of corruption into the glorious liberty of the children of God. For we know that the whole creation groaneth and travaileth in pain together until now. And not only they, but ourselves also, which have the first fruits of the Spirit; even we ourselves groan within ourselves, waiting for the adoption, to-wit, the redemption of our body.” —Rom. viii: 19—23.

The earth will undergo a great and important change at the period of the general conflagration. It will then, in some form, and under certain conditions, become the abode of righteousness. The renovated earth, in some sort, may become a precinct, or province of heaven, but it certainly, according to the general teaching of the word of God, will not be the locality of the glorified ones, described in such glowing and rapturous terms.

Dante, an Italian poet of the thirteenth century, in his “Divine Comedy of Paradise,” advances a theory of heaven, which deserves a notice here, both on account of its novelty, and because it was doubtless, to a considerable extent, the theory of the Catholic Church in the age of the author. He makes a number of apartments, divisions, or separate heavens. The Moon he regards as the first, Mercury the second, Venus the third, and the Sun the fourth; Mars the fifth, Jupiter the sixth, and Saturn the seventh heaven. From Saturn, in his

poetic vision, he supposed a ladder to extend, which reached to the eighth heaven, located among the stars; the entrance to this heaven being in the constellation of the Twins; this was the abode of Christ and his apostles. The ninth heaven, still higher, or beyond this, he supposed the place where the Divine Essence dwelt. The Empyrean still lay beyond the abode of the Divine Essence. Such is a general outline of Dante's theory.

It will be understood that I have been simply giving some of the leading theories of heaven, which have been in vogue in the Christian Church at different periods of its history. I have not adduced them to endorse them all, or any part of them.

Let us in the next place institute a serious inquiry whether heaven be a state or a place.

Many in recent times contend that heaven is no more than a state, meaning by that, it is supposed, the enjoyment of a high degree of holiness and happiness. None will doubt that the scriptures teach the necessity of holiness in order to happiness in the life to come. Peace of mind and conscience will characterize all the redeemed. It is clearly taught that without a new nature, and a due preparation of character, that no position or location will constitute a heaven to the

soul. The man in the gospel, who had not on the wedding garment, was speechless with guilt and shame at the feast, when an inspection of the guests was instituted. The songs of the redeemed, the song of Moses and the Lamb, the presence of angels and of God, would not be a source of pleasure, but on the other hand, would cause deepest misery to that soul without a renewed and sanctified nature. There is a state of mind, a state of holiness, a state of character necessary, according to the plain teaching of the word of inspiration, to the enjoyment of God, of Christ, of angels, and the redeemed. But these states of mind, character, and holiness, do not make up the sum of that heaven revealed to us in the bible. Something more is necessary. The presence of the triune Godhead, the society of angels and redeemed spirits, and a world of glory, suited to the whole, are all necessary to make or constitute the heaven of the bible. To float about in the immensity of space, to exist in an abstract state, or to dream away an etherial existence, does not constitute such a heaven as is adapted to the desires, wants, or nature of man. We must avoid a gross materialism, in our ideas of a future state, resembling a Mohamedan heaven of sensuality. On the other hand, we must avoid a transcendental spiritualism, which would refine the soul and a future life to a shadow,

or a dream, reminding one of the impalpable shades and ghosts of the ancient heathens, groping in mist and gloom. Our theories of heaven should be of a nature to assort with those who are to possess it. In short, our theories should be formed on the teachings of the sacred scriptures. Man, in this life, possesses a two-fold nature, spirit and body; a two-fold nature he will have in the life to come. The spirit thinks, feels, wills, loves, desires, resolves, and reasons; it must have a heaven adapted to its nature. The body has form and dimensions, and must have its firm ground on which to rest. This body will be raised, made immortal, spiritual; still it will be a body, though a glorified one; it will have its stature and dimensions. This body must have a heaven suited to its nature. An aerial, unsubstantial mode of existence called a "state," will not constitute a mansion, or home, for such a glorified body.

Let us now proceed to take another step in our investigations, and inquire, if Heaven be a locality, where it is.

It is to be hoped that the buzzing of no small and captious objections will disturb our investigations of a subject of so much interest as this. It is not pretended that the celestial latitude and longitude of heaven will be pointed out with astro-

nomical accuracy and precision. It is not affirmed that the telescope has, or ever will, point out the home of the soul. Anything of this nature I repudiate and disclaim. I would not degrade my subject so much as to entertain in respect to it any such thoughts. In our own day, a young man unknown to fame and the world of science, from the law of perturbations inferred that there was a planetary orb beyond the orbit of Uranus; he proceeded to determine its orbital elements, then told where the unseen and unknown world was. And, lo! the telescope directed to that part of space beheld a magnificent and gorgeous world, nearly a thousand times larger than the globe on which we dwell. There are indications, not to be disregarded, which point out the location of that glorious world designed as man's eternal home. To those indications it shows a strange want of interest to be inattentive. Volumes have been written in relation to mind, to gravity, and to electricity. None of them have been seen. Why should it be thought inappropriate to speak and write concerning a world which we have not seen? It is manifest that heaven is not in the untenanted voids of space beyond, but is evidently situated somewhere within the domains of the universe. Heaven, we have seen from the scriptures, is a place. Guided by astronomical analogies, we may determine its relative locality.

We find that satellites revolve about the primaries—in one instance, four; in another, six; in another, eight. The primaries, accompanied by their satellites, perform a revolution around the sun. The sun, accompanied by all the bodies of the solar system, is in rapid motion through space. This is not an imaginary, but a demonstrated, motion; it is performed, doubtless, around some great central body. Various efforts have been made to ascertain the precise part of the heavens in which this central orb is located—but no definite discovery has been made. The planet, with its satellites, is a system constituting a part of the solar system—the solar system is a part of a great astral system: there is motion in the two former, why may there not be in the latter? The whole system of stars in which we are situated is, judging from analogy, performing a stupendous revolution around some great central orb or a vast assemblage of worlds. The solar walk or milky-way, marks the form of our astral system. There are openings or partings seen in it; these are supposed to be indications of activity or motion in certain portions of it. The forms of many of the nebulae indicate motion. All of the astral systems may be in motion around their respective centers. The whole created universe may be, and from strongest analogies is, in motion. To the eye of

the Omnipotent, it, in all its vastness and complication, presents a scene of variegated and unceasing motion—a sublime maze of activity. The smaller world revolves around the larger: the smaller system around the larger. Ascending upward, the mind is led to the central position around which all worlds and all systems revolve.

In the scriptures the throne of God is described in glowing terms. Around it is said to be a rainbow; before it a sea of glass; about it the hosts of angels and the multitudes and throngs of the redeemed, to sing, to adore, and to render homage. This throne is said to be in heaven, and Justice and Judgment are its habitation. Christ Jesus is represented as sitting on the right hand of it. It is called an eternal throne—"Thy throne, O God, is forever and ever." It is denominated the throne of God's glory. It is represented as a great white throne. This throne is spoken of as fixed and located—it is, doubtless, situated on a world or worlds corresponding to its nature in size and splendor. Around this great and glorious central habitation of the throne of God, all worlds and systems of worlds, in mazy and complicated yet harmonious motion, may revolve. And all this may be a ceaseless and glorious adoration, paid by the whole created universe to the august Creator sitting on that throne. Such a location would be

a suitable abode for the Divine Being. Emanating from him, and radiating as light, heat, and gravity from the sun, creating and sustaining energy may pervade all the parts of creation. Emanating from him, all the laws of nature accomplish their great results. Gravity, binding all in a harmonious unity, may be but an eternal mandate of his will. Such a location as this would be an appropriate dwelling for all angelic orders. Such a locality in the center of the vast created universe would be a suitable home for the redeemed. They there would be in the presence of God, before his throne, and in their Father's house.

What evidence have we that heaven is a locality or place? Let us investigate this question according to the teachings of the sacred volume. With minds open to conviction, and filled with a love of the scriptures, let us examine it with the resolution to accept and adopt the truth, be it what it may. Enoch and Elijah were translated without tasting death. Their bodies may have undergone a change of some sort, in the process of their translation, but still, whatever may have been those changes, their bodies retained their existence. These bodies would require a locality to reside in, no other conditions would suit them. Our Saviour ascended to heaven with the body with which he rose from the grave. That body was handled by the disciples, the prints

of the nails were seen in it, it is now in Heaven. The resurrection of Christ was a type and pledge, of our resurrection. Our bodies, when raised, will be like the body of Christ. These facts may instruct us as to the nature of heaven.

Nothing but a location, a permanent world, will suit for the home of the redeemed. Two opposite errors are here to be avoided, as to the nature of the human body after the resurrection. The one is, regarding it as a gross materialism, like the forms of matter around us. The other, supposing it will be purely spiritual, such as the essence of the soul. The raised body will be a material, changed into a spiritual one—that is, it will be a glorified, sublimated body. It will be a material body, but not like the material forms with which we are now acquainted. It will be a spiritual body, but not like the essence of the soul.

The scriptures teach that God is omnipresent, and that he could make his people happy in any place. This, of course, is admitted. Yet there is somewhere in the universe, a locality where the divine presence and glory are more fully and completely manifested. Such a place is adapted, from its nature, to be a home for the redeemed. Moreover, human beings and angels are finite, they can only be in one place at one time; hence, some definite locality is necessary for them to enjoy the dis-

plays of God's goodness, power, and glory. The bible speaks of heaven as a place. Says our Saviour: "In my Father's house are many mansions, if it were not so, I would have told you. I go to prepare a place for you. And if I go and prepare a place for you, I will come again and receive you unto myself; that where I am, there ye may be also."—John xiv: 2, 3.

The question of the location, or that heaven is a place, is, I think, decided by our Saviour himself. The descriptions of heaven under the metaphors of Mount Zion, the New Jerusalem, and "my Father's house," manifestly refer to heaven, as a locality. The scriptures, in identifying and giving a fixed and definite location to the home of the redeemed, add to it the most endearing charms. By this a reality is attached to it. Though we may have no abiding city here, and may, with Abraham, sojourn in a "strange country;" yet, with him, we look "for a city which hath foundations, whose builder and maker is God." Entertaining such views as these of heaven, we may in the language of the poet say:

" Oh talk to me about heaven; I love
To hear about my home above;
For there doth many a loved one dwell,
In light and joy ineffable.
O! tell me how they shine and sing,
While every harp rings echoing,
And every glad and tearless eye
Beams like the glad sun gloriously.

Tell me of that victorious palm,
Each hand in glory beareth;
Tell me of that celestial calm
Each face in glory weareth."

Such a heaven may be the Rome or the Jerusalem of the universe; great highways, shaped and marked off by innumerable systems of worlds of varying splendor, may from all directions lead into the celestial and august capital; these highways, over which the redeemed may walk, and angelic spirits traverse, may be gorgeously lighted up by the varying splendor of millions of blazing suns; and perchance, portions of these ways may be rendered religiously sublime, from the blending hues of suns of complementary colors. Even as the provincialist would traverse plains and mountains, cross seas and rivers, traveling great military roads, from a remote part of the empire to ancient Rome, passing through higher grades of civilization, and districts more beautifully adorned and cultivated, the nearer he approached the Eternal City; so may the redeemed spirit at the hour of death, leaving this earth, a precinct of the divine empire, pursuing some of those great highways, through many a beautiful sweep, adorned with systems of worlds, each system as a parterre, and rendered glorious by the concentrated radiances of countless suns, hold on its way till it arrives at Mount Zion, the city of the living God, where the insufferable

glory, the song of redemption, and triumph, and the conscious possession of immortality combine with other circumstances to make the impression on the newly arrived, that "*this is heaven.*" Venice, built on seventy-two small islands, in the Adriatic sea, connected by canals, may give us an idea of heaven. For ages, Venice was the most beautiful city in the world; one city, but built on a great number of small islands connected together. This city thus situated, rose out of the waters of the sea like a beautiful vision. The throne of God may be located on many worlds connected by some beautiful relationship. This unity and diversity may constitute a glorious net-work of worlds, the home of the redeemed, which we are taught here on earth, in mortal language, to call heaven. Canaan may have been a type of heaven in a sense that we fail to see. It was one country, but divided into twelve parts, for the twelve tribes; Jerusalem was the metropolitan city; the temple on Mount Zion the center of that city, and the object of desire with the whole nation. Heaven may have many divisions, or may be composed of numerous separate worlds, bound into a unity, as were the divisions of the tribes. The throne and tabernacle of God may be as the Jerusalem and Mount Zion of them all. Piety in all ages and in all lands, with a sweet, homefelt feeling, delights to think, to speak, and to hear of heaven.

"We speak of the realms of the blest,
Of that country so bright and so fair,
And oft are its glories confessed,
But what must it be to be there?

We speak of its pathways of gold,
Of its walks decked with jewels so rare,
Of its wonders and pleasures untold,
But what must it be to be there?

We speak of its freedom from sin,
From sorrow, temptation and care;
From trials without and within,
But what must it be to be there?

We speak of its service of love,
Of the robes which the glorified wear,
Of the church of the first born above,
But what must it be to be there?"

The teachings of the sacred scriptures, and analogies drawn from astronomical science, concur in representing heaven as a world of unparalleled glory.

We are in an inferior world in the solar system; compared with Jupiter or Saturn it is insignificant. The sun is not only immensely larger, but is far more splendid than the earth. If there is such varying splendor in the orbs of the solar system, there may be also among the bodies diffused throughout the regions of space. These varying degrees of splendor, as so many ascending steps, may lead us toward an eminence of contemplation, from which, as from a Nebo, or a Mount of Trans-

figuration, we may get a distant, or a luminous view of that eternal world of glory, where angels adore, where the redeemed sing, where the light radiating from the Divine Essence, and the glory of Christ, banish night and sorrow, and gloom and winter. There are stars immensely larger than the sun, hence we live in an inferior solar system. Many of the nebulae are much larger than the astral system in which we live; the great nebulae in Orion seems a universe within itself. There are pairs and systems of suns, binary, treble, quadruple and multiple, which perform associate revolutions about each other; these systems, surrounded by an appendage of planetary worlds, doubtless present a scene of diversified beauty, of which we can have no adequate conception. This scene of beauty, in many cases, is heightened beyond description, from the fact of those systems of suns often presenting the phenomena of contrasted and complementary colors. There are worlds of far greater magnitude and beauty than the one in which we live; there are systems of far greater splendor than ours. There may be others beyond the reach of the telescope in all respects greatly superior to any of which we now have a knowledge. Superior to all, heaven may stand forth the centre and ornament of all worlds. This conclusion rests on strong analogies. Carbon, by the law of crystalization, is transformed

into the brilliancy of the diamond. The cloud, shone upon by the rays of the setting sun, assumes a brilliancy and beauty which the pencil of the painter in vain attempts to rival. All the variegated ornaments of the rainbow result from the rays of the sun being refracted and reflected from the falling drops of the shower. Heaven, by its connection with the glorious Creator, and the light and glory eternally radiating from him, may present the radiance of the dazzling splendor of the diamond, the glowing hues of the setting sun, and the reflected beauties of the bow in the clouds.

Heaven is described in the scriptures as a better country, the house of God, a city whose maker and builder is God. Heaven has no need of the sun, neither of the moon to shine in it, for the glory of the Lord and of the Lamb illuminate it. There the tree of life grows, and there the river of life flows, and there the gates of pearls, and the walls of jasper, and the streets of gold are seen. In short, heaven, in the scriptures, is expressed by the terms, the glory of God, and the glory of Christ.

In conclusion, what will be the nature of the employment of the redeemed?

The redeemed in heaven will possess a two-fold nature, spirit and body, bound together as indissolubly as they were on earth. Both will be per-

fectured to a great extent in holiness, but each will retain a distinct identity; spirit will be as distinct from body there, as here. It will be a raised body, and a sanctified spirit. Christ was the first fruits of the resurrection, our raised bodies will be like his. The scars on his were visible, it was handled by the disciples. Christ in his body, walked about on this earth as he did before his resurrection. With a raised body, and with a spirit dwelling in it, the redeemed will inhabit heaven. They will have the sense of vision, of hearing, and of speech, there as here. The scriptures are clear as to these points. There will of course, be objects corresponding to these senses. Objects related to them, of a nature to gratify and please them. If it be said that the senses all will undergo a change in the resurrection, it may be replied that they will, however much refined they may be, still be corporeal organs. These considerations may serve to instruct us, as to the nature of the pursuits of the glorified ones, in that bright world of immortality and unalloyed felicity. Their occupation will not merely be to dream away an existence of endless duration. To sit in a fixed posture, or to be elevated on seats of honor eternally, will not satisfy their natures or capacities. To stand around the throne of God, and to spend an immortal existence with the high endowment of noble and

capacious faculties, in no other occupation than simply singing redemption anthems, will not to them, constitute a heaven.

The dominion and omnipotence of Deity, are subjects of rapturous contemplation with the redeemed. They are represented in the Apocalypse, as exclaiming "the Lord God omnipotent reigneth." The works of God, as seen in redemption, in providence, and in creation, excite in them the highest degree of admiration. For they were heard by John, exclaiming "great and marvellous are thy works Lord God Almighty." The perfections, and mode of the moral administration of God, are themes of interest with them;—"just and true are thy ways, thou King of saints."

These scriptural facts teach us as to the nature, and varied objects of the pursuits of the redeemed. A variety of objects claim their attention; a variety of pursuits fill up their happy existence.

Their bodies, by the transformation of the resurrection, will be refined, purified, and sublimated. Matter in some gaseous forms, as hydrogen, and also the imponderable agents of oxygen, light, and electricity, are exceedingly subtle, and the latter are capable of passing through space with great rapidity. The raised bodies may be of a nature similar, or superior to these. If this be true, what powers of locomotion may the denizens of heaven

have; with the speed of light or of electricity they may traverse the dominions of the great Creator; and wherever they would go, they would behold objects to excite wonder, praise, and adoration. If any think this a fanciful view of the subject, let them be reminded that the scriptures speak of the body after the resurrection, as being spiritual. Light, electricity, and oxygen, are exceedingly refined and attenuated in their natures; between them, and the spiritual; there may be as great an interval as there exists between them, and grossest bodily shapes. We see matter is capable of existing in highly subtle and etherial conditions. The scriptures speak of the spiritual body. In glory the redeemed may, and doubtless will, possess bodily forms, of unsurpassed splendor, with powers of locomotion, and organs of vision, hearing, and utterance in harmony with the surrounding circumstances. The senses of the body will have objects of pleasure to delight them; the intellectual, and moral faculties will be drawn out in full and delightful exercise; an eternal existence will be filled up with rational, devotional, and varied employments. On errands of mercy, on missions of benevolence, on excursions of pleasure and knowledge, the redeemed—as they are to be like the angels of God, and to kings and priests—may go forth unto all parts of the vast created domin-

ions of Jehovah, and in all portions of those great journeys may feel a joy new and divinely great. And as the Jews of old, from all the tribes and cities, went up to Jerusalem at the great festivals, to worship in the temple, so at certain periods may all the redeemed, wherever and however engaged, come around the throne of the great and glorious Creator; a great multitude which no man could number, such as John saw in his apocalyptic vision, "of all nations, and kindreds, and people, and tongues," with palms of victory, and crowns of glory, and harps of gold, and in anthems and hallelujahs, "as the voice of many waters, and as the voice of a great thunder," pour forth their devotions, accompanied with, "harpers harping with their harps."



S E R M O N I I I.

LOCALITY OF HELL,
CONSIDERED IN RELATION TO ASTRONOMY.*

"I also will show mine opinion."—JOB xxxii: 10.

The history of astronomical science, in its origin, in its progress, and in its present wide extent, like all connected with human investigation, is not only full of interest, but is a source of real advantage. The origin of astronomy reminds us of the satellites, which never present but one side to the primary, the other, amid a variety of complicated motions, always being turned in an opposite direction. In the twilight of a remote antiquity, history informs us that the Chinese, the Egyptians, the Chaldeans, and the Greeks, were busily engaged in making the most elaborate observations on the heavenly bodies, handing them down either by tra-

* See Addenda—letter I, for an exposition, from an able pen, of this sermon.

ditions or by writing, for the advantage of generations coming after them. Those remote astronomers, though deprived of the helps and facilities now enjoyed; yet they brought such industry and indefatigable zeal to bear on the subject of their investigations, that they accomplished the most astonishing achievements. From the pyramids of Egypt, from the tower of Babel at Babylon, the heights of China, and the mountains of Greece, many an anxious night was spent in gazing at the orbs of heaven, and in deducing therefrom, scientific conclusions. In the middle ages, the Arabians in the sandy plains of Asia, the Moor in Spain, and the Aztec in Mexico, from the lofty top of the Teocalli, were engaged in making observations of some value, in relation to this science. But the greatest achievement connected with the progress of astronomy, was accomplished by a polish clergyman, Nicolas Copernicus, which was the discovery of the present theory of the solar system; this discovery constitutes the beginning point, of the wonderful progress which has been made in this science. After the theory of Copernicus was proven to be true, the labors of Tycho Brahe, of Kepler, and of Galileo, enlarged the circle of astronomical knowledge; then arose Newton, Laplace, and others, who seemed to extend the limits of its knowledge, almost to infinity. So that subjects unknown to

former times, are now investigated with profit and accuracy. We may now investigate the laws governing comets, nebulae, and a number of topics connected with astronomy, formerly beyond the reach of human knowledge. The history of the Christian religion is similar to the science to which allusion has just been made. Revealed at first in a seminal and germinal form, it was developed and unfolded through a series of ages, until its knowledge was expanded almost to infinity.

We may now investigate subjects unknown, and out of the reach of human knowledge in the days of the patriarchs. And these investigations may be conducted in the light of divine revelation. Future rewards and punishments, but vaguely alluded to in the writings of Moses, may safely be investigated under the present light of the sacred scriptures. It is our honor and felicity, to live at such a stage of the world's progress in knowledge, both human and divine.

The world of future punishment, as revealed in the sacred scriptures, viewed in relation to astronomical science, will claim our attention during the present hour.

We have alluded to the fact, that future rewards and punishments were but vaguely referred to in the writings of Moses. They are topics which may

now, in the light of the scriptures, be investigated with the utmost safety. The time was, when it would have been out of place, to have investigated a subject like the Locality of Hell. But the progress made in modern times in astronomical knowledge, has presented the created universe altogether in a new light to the human mind. The scriptures are more thoroughly understood than formerly; the Christian religion is now comprehended with more accuracy, as to its true nature, than in ages past. There are many subjects, hitherto beyond the reach of human investigation, now within its reach. So that there is a propriety, with due reverence, and in the fear of God, of investigating the subject of the Locality of Hell, in relation to astronomical science. Human knowledge does not stand still, human investigations are to keep pace with its progress.

I fear that a wrong impression has been made on the minds of some of the hearers, this evening, from the announcement of the subject. The object is not after the fashion of the poets, such as Dante and others, to take you through subterranean caverns, or through aerial regions, and show you the place where lost spirits are punished, and let you converse with them, see their sufferings, and hear their lamentations. The object is not to carry you away in spirit, or in spirit and body, in vision, or in

the fashion of those who believe in "clairvoyance," to some eminence from which you may see the smoke of the torments of lost spirits ascending up forever and ever. The object is not to produce some new revelation, heretofore unknown, or to add something to, or diminish something from, the sacred volume. No professions of secret, or heretofore unknown astronomical knowledge are made. I solemnly disavow any thing of this sort. I shall not travel out of the divine record. No departure shall be made from the facts of astronomy. The light of astronomy will be added to the teachings of revelation, to guide us in some investigations, in respect to a great and important subject brought to view in revealed religion. These investigations shall be made in the fear of God, with religious reverence, and with a sincere desire to understand the teachings of the sacred scriptures. May that august Being, who permitted the trembling and horror-stricken Jews, at a distance, to look upon Mount Sinai, at the time of the giving of the law, covered with clouds and darkness, shaken with earthquakes, and made fearful by rolling thunders and lurid lightnings, and yet prohibited them from coming too near the awful Mount of terror; by his Spirit of light and truth, leads our minds forth in serious investigation; full of reverence and regard for religion, to contemplate that world of retribu-

tion, where lost and reprobate spirits, full of woe, and full of anguish, suffer the doom of their follies and their crimes, restraining us from undue familiarity, or too near and reckless an approach.

It is not expected, in this discourse, to please every one. The subject is not of the nature to do this. Those who think and investigate, may find in the subject before us, much which will prove to be profitable. This discourse, then, is addressed to intelligent, enlightened piety.

What propriety is there in viewing the Locality of Hell, in relation to astronomical science? Astronomy teaches of the bodies and forces of nature. This must include an investigation, to some extent, of the voids of space; especially those voids intervening between the various orbs. All will admit, it is presumed, be their views of the punishment of lost spirits what they may, that that punishment is inflicted somewhere within the limits treated of in astronomical science. If this be true, there is a connection between astronomy and the Locality of Hell. This relationship, it is hoped, will not be misapprehended. The created universe, and the voids of space, both sustain a relation to the great Creator and Governor of all things. Hell, be it state or place, if it have an existence, which all Christians believe, sustains a relation to the same great and glorious Being. The mutual relation of

these to Deity, imply a mutual relation to each other. If there is a relationship on the part of space, the universe, and of Hell, to the existence, the omnipotence, and the government of God; then a relationship exists between the teachings of astronomical science, and the existence, and we may say, the locality, of the world in which the reprobate and impenitent are punished. The unbelieving and impenitent part of the human family will be raised up at the last day; they will be punished in these bodies. Hence, a local habitation will be necessary, as a theatre on which punishment will be endured by beings, in a bodily form. This locality; whatever, or wherever, it may be, sustains a relation to astronomical science, as much so, as any orb in our solar system, or in our astral system. The latter are strictly scientific relations; the former a relation of position and existence.

The abstract and the invisible, are the better investigated by material and visible objects. That world of divine punishment, which no human eye has seen, nor ever will see in this life, that which no telescope can see, that which no mathematical investigations can discover, it is proposed to contemplate through the created visible universe and its potent and far reaching analogies. It is hoped, then, that the aim and intention of this discourse will not be mistaken. Nothing is more unfor-

fortunate, than for speaker, or author, to be misapprehended, and for deductions drawn from those misconceptions to be arrayed against him.

In order to a correct investigation of the subject before us, it will be important to call attention to the whole created universe, as constituting one government.

By the universe, we are to understand all that has emanated from the Creator, both material forms and spiritual existences. Of the former, we may enumerate orbs of every nature, variety, and magnitude; of the latter, angels of all orders, fallen spirits, and human beings, considered in relation to their intellectual nature. Portions of it, then, are purely spiritual, other parts entirely material; and some compounded of both spirit and matter. In these discourses attention has been called to the extent and magnitude of the created physical universe. The magnitude of some of the orbs is enormous, and the distance intervening between them is inconceivable. The area of space occupied by some of the systems, such as the solar, and the great astral system, in which we are located, seem, to limited human capacities, to be infinite. Such a system viewed within itself, to our comprehension, is a universe. The circumference of the orbit of Neptune, or of some of the comets, or of the sun, ac-

accompanied by all the planets around some unknown center, may be counted by millions of miles, or thousands of millions of miles, but to have an accurate conception of their extent, is beyond the reach of finite capacity. The distance from one fixed star to another, and from one great astral system to another, together with the number of the latter, must magnify our ideas of the extent and greatness of the universe. The idea formed of it by the trained intellect is great, but greater indeed is it as it exists in all its vastness. The sweep of the telescope brings to view a creation, in magnitude, worthy of the great Creator who called it into existence; but how infinitely greater the whole creation as seen by the eye of its Creator! Forms of vegetable and animal life must be estimated in this connection. These on the globe on which we live are innumerable, and of varying sizes and forms. Analogy would lead us to the conclusion that all worlds are, equally with ours, stocked with life. The whole physical creation, composed of such variety of forms, of organic and inorganic parts, forms a unit, a great dominion, a huge government. But whilst it constitutes, in respect to its various parts, a unity, it is a part or division of the whole divine government or empire; it is the material portion of it.

The other division of the divine government is spiritual. This embraces all intelligences wherever

their habitation or abode may be, whether in heaven, or on earth, or in hell. Angels of all orders, glorified spirits in heaven, human intelligences, lost spirits, and fallen angels are all embraced in it. If there are inhabitants of an intelligent nature in any, or in all of the worlds revealed in astronomical science, they are included. These all taken together constitute a spiritual dominion, a vast government. However varied the orders embraced in it, yet it must be regarded and viewed in relation to itself, as a unit. It constitutes a distinct, separate part of the divine government. Here there are two great divisions of the dominion of God, physical and spiritual; both sustaining a mutual relation to God. They are parts of a whole, constituting a sublime unity. Their adaptation to each other, and their mutual relation in this adaptation to God, give an importance to their unity not to be overlooked.

• God, according to the teaching of the scriptures, is the originator, the parent, and the creator of both. From his power, wisdom, and goodness they emanated. In obedience to the omnipotent fiat of his will, at some epoch or epochs of the past, under appropriate conditions, every constituent member and portion of this great dominion, embracing both of its divisions, sprang into existence. Not only has God created, but he governs this dominion in both departments; the physical by physical laws,

the spiritual by spiritual laws. This should never be overlooked. The laws governing the universe, as well as the universe itself, emanated from God. He who created all things, imposed laws on all things. Law is co-extensive with creation. Wherever there is an intelligence, an orb, or a material form, there laws are present in appropriate operation. Without the uniform operation of these laws, disaster and dire results would follow; anarchy, chaos, and confusion worse confounded, in the material part; discord, rebellion, and ruin, in the spiritual. The universe, then, composed of two great divisions, constitutes a unity, sustains a relation to God as creator, and is governed by uniform and fixed laws.

We have seen the great universe, material and spiritual, under fixed and determinate laws; let us then proceed to inquire into the consequences of the violation of those laws.

First, we will call attention to the violation of physical laws. The great law of the physical universe is gravity. All other physical laws, such as chemical, organic, and many others which might be mentioned, act in subserviency and harmony with it. It may be stated, that in no instance, however minute, can a physical law be violated without derangement, disaster, or death. Numer-

ous instances might be given from various departments of nature, but as these are astronomical discourses, examples connected with astronomical science will be selected.

Between the planets Mars and Jupiter, some eleven or twelve asteroids pursue their way around the sun, in orbits nearly in the same direction of the planets, and nearly in the same plane of their orbits. There are evidences to believe that these asteroids are the fragments of a great planet, which by some disaster or convulsion, at some past epoch, was torn asunder. If this theory be true, here then, was a sad disaster, which resulted from the violation of physical laws. It is a fact well established in astronomical science, that new stars have suddenly made their appearance. On the other hand, some have disappeared, which have never been found again, eluding the most careful and minute search. In these instances of disappearance, either annihilation or some great change of place or nature must have occurred. Adopt either view, and we are forced to the conclusion, that laws of some kind, and to some extent, had been violated, and that disaster corresponding had resulted. Some meteors evidently have an aerial origin. The majority of them, however, approach the earth, coming from regions beyond the earth's atmosphere. They are doubtless connected with the

Zodiacal Light, which is a nebulous or cosmical zone rotating about the sun. Its orbit, at certain times, comes in contact with the earth's orbit, and portions of its matter are drawn into our atmosphere, and fall as meteoric phenomena. Hence the origin of November meteors, a magnificent display of which some of you doubtless remember to have witnessed. The fall of the meteors to the earth in this case, is the result of the violation of laws. Intimately connected with this, and presenting something of a similar phenomenon, meteoric stones frequently fall to the earth. A variety of theories of their origin have been given in these discourses. The most probable, and the most rational one, is, that there are small cosmical bodies in great numbers revolving about the earth; indeed, the whole solar system, it is supposed, is full of these. Overcome by the earth's attraction, and narrowing in their orbits, they from time to time, according to the theory in question, have fallen to the earth, with an explosion and a luminous appearance. The chemical constituents of these bodies, as found after their fall, agree with this theory. Whatever may be the true cause of their origin, the fact is indisputable that they do descend to the earth. In this descent laws have been violated: their fall is the result of these violations. In consequence of this violation, they quit

their position or orbits, cease to have an independent existence, and become a constituent of the globe on which we dwell. One class of comets revolve about the sun in extremely elongated ellipses. Some of these fall into the sun. This may result from two causes—either that they meet with resistance from an interplanetary ether, by which their orbits are narrowed until they fall into the sun, or the greater gravitating force of the central luminary may ultimately precipitate them on its surface. Sir Isaac Newton conjectured that comets were fire-makers to the sun. There are comets now, on which observations are being made, which will ultimately fall into the sun. Enck's comet may be mentioned as an example. When comets, be the cause what it may, violate the law of gravity, they fall into the sun, which terminates their existence as comets. Some comets, moving in hyperbolic orbits, never approach the sun but once, and then dart off in the realms of space, and are either attracted and taken up by other systems, or else move on eternally on a returnless voyage. In either case, in respect to the comet, we see the result of the violation of the law of gravity. The resistance of the interplanetary ether, may, after the long lapse of ages, cause every body in the solar system to fall into the sun. If any think that this favors the idea of the annihilation of the

whole system, it may be remarked, that after such an event as the one alluded to, that under the operation of great laws, a new solar system might emerge from the wreck and ruin of the present. We know little of the annals of the physical universe. The present solar system, for aught that we know to the contrary, may have emerged from the ruins of a former one. This, however, is advanced not as fact or demonstration, but as a speculation. Should the interplanetary ether, in its resistance cause the bodies of the solar system to fall into the sun, a scene of ruin, of an unparalleled nature, would be the result of the violation of great laws.

In these instances, it must be borne in mind that the laws violated are physical ; that the agents and the results are physical ; that the whole occur in the physical part or division of the divine government.

In the second place, let us direct attention to the consequences of the violation of spiritual laws.

And here we must be careful to make a distinction between a physical and a spiritual law—a law seen in force in the material world, and one revealed in the sacred scriptures. Let us distinguish a physical agent from a moral or intelligent agent—

an orb, such as a planet, satellite, comet, or sun, from an intelligent being endowed with will and choice. Gravity is the great law of the material universe; the moral law, of the spiritual universe. The former is adapted to inert, senseless matter; the latter to intelligent beings, capable of virtuous or vicious actions. The orb moves as moved upon; the spiritual agent chooses and resolves. The former violates a physical law without knowledge, intelligence, or choice; the latter, an intelligent agent, voluntarily violates a moral law. Violation, in either case, is followed by ruinous consequences. The results, though ruinous, are of the nature of the agents violating, and the laws violated. In this life, whenever we violate the moral law under which we were created, guilt and misery ensue. This is true, whether the violation have respect to our fellow man, or to God. All our misery and guilt are in some way connected with violations of this law. There is no instance in the sacred scriptures in which there is a violation of a positive command of God, or a law, in which calamity in some form, and to greater or less extent, does not befall the violator. The expulsion and ruin of the apostate spirits, and the fall of man, were the results of the violation of a great law—that is, the moral law. The fact of guilt and misery following the commission of evil deeds,

and of pleasing feelings, the performance of good actions, is evidence that we are under a great moral and spiritual government. If under such a government, every violation of law must be followed by consequences more or less ruinous, in proportion to the offense. We have seen the result of the violation of physical laws in the material department of the divine government. If destruction there take place for the violation of laws, why not in the spiritual department of the same great government? Reason and analogy are both on the side of the total and endless ruin of the wilful and determined violators of the law of God. It would be unreasonable, contrary to analogy, and unlike God's procedure in his physical dominion, for sinful men and rebellious and fallen angels not to be punished in some manner and place. Thus, there are great facts in astronomy, which, if understood in all their relations and significations, convince the reflecting mind that there is truth and reason in that system of divine retribution and punishment revealed in the sacred scriptures. In this discourse, it has already been stated that some surprise might be excited in the minds of some, that the Locality of Hell should in any way be connected with astronomical science. It is hoped that all thinking and seriously religious people will here consider the

advantages of so doing. Where is there, in the range of nature, evidences of so clear and satisfactory a character in favor of future rewards and punishments, as may be derived from astronomical science? The shallow in science and the bigot in religion may deride, (not understanding what they are deriding,) but those of profound thought and those who love truth, will act and feel very differently. The facts of astronomy in question, in their results, significations, and analogies, confirm a great but gloomy doctrine, brought to view in the revealed word of God. That doctrine is the ruin of erratic and lawless spirits, after the manner of certain orbs, as taught in astronomy. The subject is a melancholy and sombre one. It presents the spectacle of an eclipse, or of that darkness of Egypt, referred to in the sacred scriptures, or the more fearful darkness of the valley and shadow of death. It would be pleasant to turn away from such a topic, did not duty demand its investigation. Astronomy is the sublimest of all sciences—beauty and harmony are seen in all parts of it. Yet disorder, violated laws, and ruin are witnessed within its domain. The astronomer feels it incumbent on him to investigate the nature of aerolites, asteroids, and comets which have fallen into the sun, or those which give indications that they will. Revealed religion is full of cheering promises and

beautiful truths; yet the fate of apostate angels and the doom of lost spirits, full of gloom and horror, are brought to view in it. Then, we see, both from astronomy and revelation, reasons for prosecuting our investigations of the fearful topic under consideration. On the giving of the Law, at Mount Sinai, it is recorded: "So terrible was the sight, that Moses said, I exceedingly fear and quake." Actuated by similar feelings to those which moved the Hebrew Lawgiver's soul, let us proceed in the investigation of the topic before us.

In so doing, let us proceed to examine what the scriptures say as to the Locality of Hell.

So plain are the scriptures in reference to this subject, that it is needless to say much. It is said that Satan is to be bound a thousand years; this binding evidently implies a fixed locality. It is said that Judas, in consequence of his transgression, went "to his own place." The rich man is represented as being in a "place of torment;" on lifting up his eyes, he saw Abraham afar off, and a "great gulf" was between him and the world of glory. It is said that hell was "prepared for the devil and his angels." The fitting up or preparing a place for the punishment of fallen angels, certainly conveys the idea of locality. The wicked, at the judgment day, are not left to wander at pleasure in their

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guilt, nor are they banished at discretion, or without reference to locality, but they are driven to that punishment prepared for the devil and his angels. The wicked will be raised up with bodies, and in these they will be punished. This fact is sufficient to teach us that the final punishment of those who refused to be redeemed, will be connected with some locality. The penitentiary, or prison, in which offenses of a civil character are punished, must have a fixed and definite locality. Equally must that great prison-house of correction, or penitentiary connected with the divine moral government have a location. No more is necessary to be said in reference to the teaching of the scriptures on this part of the topic before us.

It may not be foreign to the object of our present inquiry, to allude to the different theories which have been entertained in respect to the world of future punishment.

At a very early period of the history of the Church, the doctrine was started, that at the last day, or the judgment day, the righteous would be raised up in glory, and that the wicked would be annihilated. The annihilation theory, in all ages, has found some advocates. It is unfounded in the sacred scriptures, and is at war with all the principles of the divine government.

The ancients thought that hell was located somewhere near the center of the earth. This was the result of the knowledge which then prevailed as to the extent of the universe. The earth was then regarded as the center and most important part of creation. The sun and moon were regarded as objects that communicated light to us, situated at a considerable distance, and of greater or less size. The stars were regarded as shining points; and the planets then known as wandering luminous objects. The earth was considered as the universe, or the "world," surrounded by the ornamental and useful appendages of the stars, the sun, and the moon; with such ideas of the universe, the ancients could do no better than locate the world of punishment in the center of the earth. Their error in religion resulted from the want of a knowledge of astronomical science. This is another practical example of the advantages accruing from connecting astronomy with revealed religion, and also of connecting it with a topic like the one under discussion, that is, the Locality of Hell. Those who have held to this theory, or who may now hold to it, have already connected the location of the world of final punishment with astronomical science, in regarding the center of the earth as its locality. For the earth is one of the bodies treated of in astronomy, and at a former period was regarded as

the most important one. Indeed, it is impossible to give any Locality to Hell, without connecting it with astronomical science. If the "state" theory be adopted, that a state of suffering, somewhere in space, must be endured by each lost one, the point in space of suffering must have some relation to the orbs of space. It may be stated without presumption, that no enlightened Christian in the present day believes that Hell is located in the earth. Mr. Swinden supposed that Hell was located in the sun. Recent discoveries have shown that the sun is not a globe of fire, but is opaque, surrounded by a luminous atmosphere, and is of a nature to make a far more delightful habitation than the globe on which we live. It is needless to say any more in respect to this theory.

Mr. Whiston supposed comets were agents for punishing the wicked. Placed on them, at one time, he supposed they were burned with heat, at another frozen in ice and snow. When the comet would be in its perihelion passage, the heat, he supposed, would be insupportable; when in its aphelion, the rigor of the cold would be indescribable. Milton entertained sentiments somewhat analogous to these, as expressed in *Paradise Lost*, which has been before quoted in these discourses.

Modern science has shown that comets are not monsters, but that they are very harmless worlds.

Instead of regarding them as galley-ships, or prison-houses, the facts would rather justify us in concluding that they would be a suitable abode for virtue and happiness. There seems to be no good reason for regarding comets as so many places for the punishment of crime and the infliction of misery.

The poetical views of hell, with their sublime images and descriptions of horror, given by Homer, Virgil, Dante, Tasso, Milton, and Pollock, are familiar to the reader of poetry. Dante's theory, with its degrees, and apartments, and ascents, is entitled to more serious consideration than any of the other poets, from the fact that it was the exponent of the theological views of the Catholic or Western Church in the age in which he wrote.

The theory of hell being a *state*, and not a place, is overthrown by the scriptural fact, that the wicked will be raised at the judgment day, and will be punished in those raised bodies. So nothing more need be said concerning it. These theories I have stated as I have found them. Of course I will not be held responsible for them.

Let us now, with due caution, proceed to inquire where the world of future punishment is located.

We have alluded to the propriety of connecting astronomical science with our investigations rela-

tive to the Locality of Hell. Attention has been directed to the fact, that the whole created universe, physical, and intellectual or spiritual, as constituting one great government, under fixed and determinate law, sustains a relation to God, as Creator and Governor. We have seen that the violations of those laws, both spiritual and physical, were followed by disaster and ruin. Reference has been made to the fact, as taught in the scriptures, of the Locality of Hell. Some of the different theories in relation to the world of future punishment, which at different periods have been entertained by Christians, have been stated. After these successive steps, and bearing them in mind, let us proceed in the investigations before us. Of course, we will be guided by the light of revelation. A fair interpretation of the scriptures, is what is now aimed at; it is not the wish to wrest one passage out of its connection, or true meaning. By connecting astronomy with the topic of discourse, the object is to afford facilities for arriving more easily at the meaning of a certain class of scriptures. Science is called upon to do service to religion, to render homage to it, as the star-led sages of old did to the infant Messiah. There is a caution, in the form of an adage, which has been repeated a thousand times; it is this, "be not wise above what is written." Of course it contains good advice, but

it has been much abused. It has probably done more harm than good, in the religious world. It has proved a formidable bar to scriptural investigation; it has been a great encourager of indolence; it has flattered ignorance. Because we should not grow wise above what is written, there is no reason why we should not grow wise up to what is written. If it be a sin to be wise above what is written, it is equally a sin to be ignorant below, or of, what is written. It is our duty both to search, and to try to understand the scriptures. It is better to make a sincere effort to comprehend their meaning, and fail, than to remain in wilful ignorance. The bible is not honored by indolence stupidly sitting down, and veiling itself in the black folds of ignorance.

Here, I would request you to recur to what was said in the last lecture, in relation to the universe and space. The created universe, though stupendously great—great beyond the comprehension of finite intellect—great beyond the utmost reach of telescopic power; yet, it has form and limit. Beyond its boundaries, in all directions, infinite space, in gulf and abysm, extends beyond gulf and abysm, in awful solitude and darkness. Those dreary deserts of space know no limits or boundaries. The created universe is lighted up by innumerable suns. Those infinite realms of space beyond are all darkness; no morn breaks therein,

no sun shines there, no star twinkles, no moon diffuses its mild radiance there. The eclipse, and the darkness of night, which is but the shadow of the earth, convince us that where there is no luminous orbs to shine, that there is darkness. There are certain fields in the heavens where there are starless openings. The darkness in these is indescribable. What then must be the darkness of those voids of space, beyond the limits of the created universe? Milton, with truthfulness, as well as with vivid poetic effect, describes the wastes of untenanted space lying exterior to the created universe:—

. "And from the shore
They viewed the vast immeasurable abyres,
Outrageous as a sea—dark, wasteful, wild,
Up from the bottom turned by furious winds
And surging waves, as mountains, to assault
Heaven's height, and with the centre mix the pole."

Hell must be located either in the created universe, or else beyond, in those voids of space where silence and darkness reign. If it be located in the created universe, it must be in the earth, or in the voids of space intervening between planets and systems, or else in some orb, such as a comet, a satellite, or a sun. The scriptures do not warrant the conclusion that it is located in any of the orbs of the universe. The fact that the wicked will be punished in bodies, raised up, precludes the idea of the interplanetary spaces being the locality.

Attention has already been called to the theory of its being located in the earth. If it were necessary, this could be shown to be impossible. The earth increases in density from the surface to the centre. There can be no very large cavities, or prison houses, near the centre of the globe on which we live. But it is needless to say more as to such a locality. Who, in this day, believes it? The whole created universe, in all its vastness, embracing innumerable and various worlds, constitutes a great and sublime house—a created, physical mansion; star-built, and sun-adorned, the house of God—a magnificent and God-like temple, in which the music of the spheres, and the hallelujahs of glorified ones, in divine harmony, celebrate the praises of its august Creator and Ruler. Within this universe-house, the sigh of despair, and the groan of the lost surely cannot be heard. Within this august and gorgeously illuminated temple, there is no place for eternal misery—there is no place for incurable woe—there is no fitting Locality for Hell. We must look elsewhere for the place of darkness, which in the sacred scriptures is called the “blackness of darkness.”

We must look beyond the created universe, in the infinitudes of space, for the locality of that world where the lawless ones are punished. Still let it be reiterated that the universe is limited, and

that space is infinite. There, to use phrases which have reference to man's locality on this planet, to the zenith and to the nadir of the vast universe, to the east and west of it, and to the north and south, sweeps away, tract behind tract of infinite space. The latitude or longitude, of those outer regions, I pretend not to determine. Not even so much as any relative position in them, where Hell may be located, do I pretend to point out. The distance from pole or equator is not affirmed. Any thing of this nature I repudiate and disclaim. I cannot point to the place or direction of space where it is located. Course and distances must be banished from our minds, in an investigation of this sort. Then I affirm, led to the conclusion from the light of the scriptures, that Hell is located beyond the created universe, somewhere in the voids of space. This I now propose to prove, from the teaching of the sacred scriptures. Prejudice condemns before hearing. Bigotry closes its ears, and resolves not to hear; not even will it listen to the voice of an angel, or an oracle, or, to the sacred scriptures. Ignorance like the mole, or bat, preferring darkness to light, will not use the eyes wherewith it is possessed. I desire to speak to reason, with eyes that never sleep, with ears that never grow heavy or dull, and with poising scales in hand, ready to weigh every assertion and every fact. Happy is

the speaker who has reason for his auditor. With that noble Athenian, I would say, "Strike, but hear me."

Our ideas of future rewards and punishments must be taken from the New Testament. Moses but vaguely alluded to this subject. The prophets, and after writers of the Old Testament, threw but little light on it. Our Saviour fully revealed the doctrine of future rewards and punishments. It is from him, that we are to learn the nature of the punishment of those who refused to be redeemed. As the subject was not often discussed by our Saviour, we shall find not many scriptural references to it. Says our Saviour: "many shall come from the east and west, and shall sit down with Abraham, and Isaac, and Jacob, in the kingdom of heaven; but the children of the kingdom shall be cast out into outer darkness."—*Mat.* viii: 12. Again, "bind him hand and foot, and take him away and cast him into outer darkness; there shall be weeping, and gnashing of teeth."—*Mat.* xxii: 12. Again, "and cast ye the unprofitable servant into outer darkness."—*Mat.* xxv: 30.

You will here be so good as not to confound the word *outer*, with *utter*, which is often done. The word *outer* is opposed to *inner*, as the outer wall of a town or fortification, an outer gate, or the outer court of a temple. Beyond the limits of the

created universe is; in the true sense of the term, and in a sense worthy of being connected with the final punishment of the wicked, outer darkness. Where is the outer darkness of the scriptures, if this be not it? Where is darkness answerable to the scripture outer darkness, save in those infinite voids of space, beyond the frontiers and boundaries of the created universe, where darkness and night hold an eternal, and undisturbed reign.

Jude affirms, that "the angels which kept not their first estate, but left their own habitation, he hath reserved in everlasting chains under darkness unto the judgment of the great day." One place of punishment serves for both the devils and for lost spirits. Note that fallen angels are in "*chains under darkness.*" Satan is called the prince of darkness. He is the prince of those fallen ones imprisoned in darkness; and as such, delights in dark deeds and dark councils. It is said concerning the rejectors of gospel, "when the Lord Jesus shall be revealed from heaven, with his mighty angels, in flaming fire, taking vengeance on them that know not God, and that obey not the gospel of our Lord Jesus Christ; who shall be punished with everlasting destruction from the presence of the Lord, and from the glory of his power.—1 Thes. ii. 1—9. In this passage, in which the Apostle is treating of the doom of the finally impenitent, two

things are affirmed, worthy of our consideration. The first is, that those "that know not God and that obey not the gospel of our Lord Jesus Christ, shall be punished with everlasting destruction from the presence of the Lord." These characters are punished from the presence of the Lord. Is there a place in the created universe in which God's presence is not manifested? Might it not be said that in those outer voids of space, that God's presence was not manifested, save in the destruction of those lost ones? The second is, that those characters shall be punished "from the glory of God's power." Wherever there are objects of creation, there the glory of God's power is manifested. To find a locality where God's glorious power is not manifested, we must go beyond the limits of creation, into the untenanted voids of space. In those regions of space, desert and unoccupied, where the glory of God's power is not displayed, we have the warrant of sacred writ, is the locality of the punishment of lost spirits—that is, the Locality of Hell. These scriptural quotations, taken in connection with the teachings of astronomy in relation to the created universe and space, convince us where hell is not, and where it must be located.

We can have no idea of a human form of government without penal statutes and penal forms of law. There must be systems of correction, restraint, and

punishments, or else there is no government. Something analogous is necessary to the existence of a divine government. In the physical part of the divine government are laws, and, as we have seen, there are violations and ruinous consequences. There are laws in the spiritual part of the great dominion of God; those laws in the physical division when violated, (and they have been violated,) are followed by destructive consequences. We have, from highest analogies, apart from the teachings of the scriptures, a right to expect that there is connected with the great moral government of God, a system of punishment, a code of penalties, a mode of correction, or means of restraint. We have a right to expect somewhere located, a great prison-house—penitentiary—a house of moral correction.

Hell, then, located in voids of space—in outer darkness, serves such a purpose. It is a Botany Bay to the moral government of God. Far beyond the limits of the holy city of Jerusalem, lay the Dead Sea, with its dark and sluggish waters sending up dense masses of reeking smoke toward heaven; even like this, far from God, and beyond creation's limits, in the voids of space, enveloped in thick darkness, lies the world of future punishment, amid darkness eternally, in awful volumes and masses sending up denser darkness, meriting in truth and veracity the scriptural appellation of "the blackness of darkness."

Before closing this discourse, it is due to the audience, and the topic under discussion, that something be said on the agreement of future punishment and divine goodness.

The goodness of God is displayed in astronomical science. It is seen in every page of revelation. The scriptures declare that God is love. How can the punishment of lost spirits, or the existence of Hell, harmonize with the infinite goodness of God? In reply to this, several considerations may be offered.

I. Man is a free agent. There is no necessity of his being punished or driven from the presence of God. Those who are lost, choose death—prefer it, to life.

II. There are degrees in punishment. The punishment of the lost will be proportioned to their guilt and depravity. No greater punishment in any case will be inflicted than the extent or nature of the case merits. Divine goodness will display itself in saving myriads of the lost ones from suffering any greater degrees of punishment than that which bears a strict proportion to the offenses committed. So that such may ever view far below them, in a lower deep of hell, the doom of those whose guilt and depravity were more aggravated than their own.

III. God has done all that he can consistently with his perfections, his moral government, and man's free agency, to prevent the loss of any one, and to secure the salvation of all. One needs but read the scriptures to be convinced of this.

IV. No better disposition could be made of the lost spirits than to consign them to the world of wo and darkness. The songs of the redeemed, the glory of heaven, and the beatific presence of God, would only make them the more miserable by contrast. The man without the wedding garment on was speechless with guilt and confusion in the presence of the governor of the feast. When Judas reflected on what he had done, he went out and hanged himself, to escape his crime and the One against whom it was committed. At the judgment day, the wicked are represented as concealing themselves in dens and caverns of the earth, and calling upon rocks and mountains to hide them from the presence of Him sitting upon the great white throne. Hell would be a refuge, if it would hide the lost spirits from the presence of God. This sentiment, in substance, was uttered by the dying Altamont. Those who, by sin and disobedience, ruin themselves, God places in outer darkness. There they are obscured from heaven, in their guilt and shame, by the blackness of darkness. They, by their sin and folly, brought

endless misery on themselves, and so God could make no other, and it may be said with reverence and in truth, that he could make no better, disposition of them. O Israel, thou hast destroyed thyself! The parent who loves his children will not only consent, but will even take measures to put his child, bereft of reason, in the lunatic asylum. He could make no better disposition of him than this. It would only increase the calamity of the child, and disturb the peace of the public, for the lunatic, unrestrained and unconfined, to go wherever the crazed inclination prompted: to be in the presence of the parent would neither be an advantage to the one, nor a satisfaction to the other. Parental feelings and solicitude are seen in the conduct of God, as manifested in the awful disposition made of lost spirits. And even in this procedure, we may confidently affirm, in the language of scripture, that God is love. The scriptures will not authorize our taking any other view of the disposition of the wicked than this. Surely, this is awful enough. They ruin themselves; within themselves they have created the elements of endless misery. What the epic poet affirmed of Satan may be applied to them:—

“Horror and doubt distract
His troubled thoughts, and from the bottom stir
The hell within him; for within him hell

*He brings, and round about him, nor from hell
One step, no more than from himself, can fly
By change of place."*

V. To preserve order in all the moral government, displays the benevolence of Deity. If lawless and self-ruined spirits were suffered to wander in riotous confusion, the entire divine dominion, where peace and righteousness now prevail, would be a scene of confusion and discord—a vast bedlam. A love of order, and a love to his people, prompts the Divine Being to banish to outer darkness the rebellious who would not submit to the reign of Christ.

VI. There was but one way to prevent the doom of the impenitent. That would have been never to have created the human race. Such is the nature of the divine government and the agency of man, that the Deity could not have prevented one soul from ruining himself: for he governs free agents by rewards and punishments. This he chose, this he willed, this he ordained. He will not, he can not, depart from it. Had Deity not created the human family, to prevent a portion from destroying and making themselves hopelessly miserable, it would have been anything but benevolence to the obedient and glorified part of the human family. So one portion of the human family have not been by divine benevolence depri-

ved of endless happiness, to prevent a disobedient part from wilfully, without restraint or compulsion, making themselves miserable. These considerations induce us to believe that the punishment of the wicked is not inconsistent with infinite goodness. Even as the arched bow of variegated beauty is seen above the dark and angry cloud, rendered terrific by sound of thunder and blaze of lightning, so the divine benevolence in all its infinite excellence, is seen fringing the blackness of darkness which obscures the fearful doom of lost spirits and fallen angels.

Let us now turn away from this subject. It is a sombre, a melancholy one. It produces the feelings on the soul of a total eclipse of the sun. With awe and reverence let us turn away from it. And as Noah, riding in the ark over a ruined world, looked out and beheld the bow of promise, the covenant of God, and felt a divine assurance of deliverance; so let us, turning our eyes from that "outer darkness," and all the ruin and woe connected with it, direct our attention to vast creation, as revealed in astronomy, hanging like a transparency or vast illumination suspended from divine omnipotence, and behold, in the presence of God, that glorious home prepared for all obedient and dutiful children.

S E R M O N I V.

THE ATONEMENT,

CONSIDERED IN RELATION TO ASTRONOMY.

"For it pleased the Father that in him should all fullness dwell; and, having made peace through the blood of his cross, by him to reconcile all things unto himself; by him, I say, whether they be things in earth, or things in heaven."—COLOSSIANS 1: 19, 20.

THE two great and leading facts revealed in the scriptures, are creation and redemption. They are the great events of the history of the divine empire; they give infinite importance to it; they both bear the impress of high divinity. Creation was an original, primary idea with the Divine Being; redemption was in one sense subsequent, remedial, and supplementary. Creation being primary and original, it embraced within its scope and design the glorious redemption scheme. With respect to the Divine dominion, the former extended the farther, embraced the more; the latter, of

course, has an absorbing interest and a vital importance to human beings who are embraced within its life-giving and hallowed influences. The Atonement and Creation, emanating from the same source, have many points of analogy, strong and unmistakable—such as are seen between God the Father, and Christ the Son. Creation was the first—a physical work: redemption the second—a moral work. Each is God-like and divine; both shadow forth the glory of their Author; the one exhibiting his natural, the other his moral attributes. One class of the human family direct their attention, in misguided devotion, to the work of redemption. And as one may look at the brightness of the sun, until the eye is incapable of seeing any other object, so do such persons render themselves incapable of a proper contemplation and appreciation of the works of the Creator's hands. Neither the scriptures, nor the Author of the Atonement, nor the Atonement itself, is honored by such a mode of procedure. An exalted and comprehensive view of creation furnishes a stand-point and vantage-ground, from which the better view of redemption can be obtained. Such a position reminds one of Moses on Nebo, viewing the land of Canaan. On the other hand, there are those who devote their entire attention to the works of creation, neglecting all the sublime doctrines of

revelation. Such a course is an error and a fault. By such a course, extensive views of creation are obtained; but the Atonement, neglected and lost sight of, seems insignificant. Hence an objection arises in their minds, of a very formidable character, based on the discoveries of astronomical science, in relation to the redemption of the human family by the Son of God; In the estimation of such, this world and its inhabitants are too insignificant, compared with the countless orbs of the universe, to attract so far the sympathizing attention of the great God, as to induce him to give his Son to die for its erring denizens. Many great minds have been disturbed in this way. The Psalmist seems, when contemplating the sun, moon, and stars, to have feared that God might overlook man and his wants.

I will take occasion from the text to invite attention to the Atonement, the great central doctrine of revealed religion, in its relationship to astronomical science.

In order to a correct and scriptural understanding of the nature of the Godhead, it is necessary to take into consideration the nature and the mutual relations of a father and a son. Christ is the Word, or voice, of God—the creating, the manifesting Word. The Father reveals himself through

the Son; he holds, through him, all communication with his creatures. Christ is the brightness of the Father's glory, and the express image of his person. The scriptures are definite in teaching that all things were created by Christ; he is the head of all things. God, through him, as the creating Word, called every being and object into existence; by him, as the manifesting Deity, he governs all worlds and all intelligences. We are justified in affirming from the sacred scriptures, that God the Father, all the future being present to his infinite knowledge, resolved, in view of the introduction of moral evil into the universe and the sin of man, through Christ to create all things, and to commit to him the government or administration of the whole universe. This administration is to continue until evil shall have been remedied, and the great redemption scheme shall have been perfected; and then the Son will surrender up the reins of government to the Father. The scriptures inform us that God will then be all in all. Then the great plan of the moral government, or the original idea of creation, with all its extent and sublimity, will move on in majesty and grandeur, in the direction of some august and ultimate destination; and at every stage of progress, the swelling raptures of devotion, awaking the slumbering echoes of eternity, with mill-

ions of sweet voices will chime forth the joy of redemption, perfected and made immortal.

There is, then, a manifest propriety in considering the Atonement in relation to astronomical science. The created universe, of which astronomy treats, and the Atonement, or work of redemption, emanated from the same creating Hand ; the same superintending care extends over both ; they both sustain an important relation to the same Being. In the gospels there is a harmony between the sayings and actions or works of Christ. The Atonement and creation sustain a similar relation. The miracles of Christ explain his teachings ; and, in turn, his doctrines explain the nature and intent of his miracles. Emanating from the same source, and flowing not in dissimilar directions, creation and redemption may be compared to two majestic, far-rolling rivers ;—the one of which might be symbolized by the huge, mystic, and in some places obscurely defined, course of the milky-way or solar walk ; the other, by that stream described in the scriptures as flowing, a mild and placid river, amid the calm and Sabbath-like serenity of the Paradise of God. The flowing waves of both tell of a common origin ; they signify a kindred purpose ; they are moving on to the same destination. They are both fringed and enameled with shrub and flower of every variety of beauty ; they both, in many a

curve and winding sweep, roll on their waters, through verdant plains and flowery meads, and through forests of perpetual bloom, where the searing influences of autumn or the blighting effects of winter, are unknown. Unlike that river of Babylon, the harp of devotion on these streams is never hung on the willows. Both are eternally flowing anthems of praise to the triune God. The one, in bold, majestic strains, celebrating the wonders of Divine existence and the glory of his perfections; the other, in melting, living strains, wafting along the praise of Divine compassion, of incarnate love, and of redeeming mercy. Like the telescope of the astronomers, which reveals wonders, enlarging our views of the domain of creation, bringing to view resplendent worlds and gorgeous systems; does the physical universe, when made a point from which observations of the Atonement are taken, bring to view many an object of endearing interest, many traits of highest importance in the character of the Mediator, and many phases of wonder in the divine attributes, which before were invisible. There ought not to be an objection on the part of any one in coupling astronomical science, in an appropriate manner, with our views of the Atonement.

But modern astronomy, with its astonishing discoveries, has become the source of very serious and

grave objections to the truth of the redemption of the human family by the Son of God. Some of the greatest intellects of human nature have wrestled with doubts of this character. In some instances, overcome by them, they have taken the stand of open infidelity. That which gives force to these objections, is the smallness and insignificance of the globe on which the human family, the objects of redemption, reside, and the vastness and stupendous size of the created universe. To bring out the full force of these objections, and to see them in all their parts and phases, I will take the liberty of inviting your attention to the

Plurality of worlds, as taught in astronomy, and on the evidences in favor of their habitability.

The time was, when this globe was regarded as the center of the universe; it was even supposed to be the universe itself. The sun, situated at a considerable distance, was supposed to be revolving around it, and to be a ball of fire; the stars were thought to be twinkling flames. As to the moon, its utility was acknowledged, but its nature was not very well understood. The comets were believed to be monsters of spontaneous production, springing into existence on appearance, and when disappearing, being annihilated. Heaven was supposed

to be somewhere, and to be a state, place, or, peradventure, that which was different from both, and some kind of idea, probably very indefinite and vague, was attached to it. As for Hell, the prevailing opinion was, that it was somewhere deep under the earth, and whether it had some connection with the surface by cavern, fissure, or a vast opening, men were not very precise in their opinions. This was the universe; and it was supposed to be extended and great. Of course, it was man's universe, created by his own fancy or superstition. The bible was called in, and passages of holy writ were tortured, and made to prove it all true. And then, to complete the absurdity, whatever was said against this universe of man's own creation, which tortured scriptures proved to be true, was regarded as a deadly heresy. The friends of religion have been its worst foes. Infidelity it could successfully wage war against; but it has often been ruined by its friends.

The bible never was intended to teach the physical sciences, nor a system of cosmography. The truth of one system, or the falsity of another, or the truth of any one science, is not to be proven from the sacred scriptures; that is not their aim or province. The scriptures harmonize with science, but do not teach it. The plurality of worlds is a question to be proven to be true or false by science, it is a question of science, not of revelation. The

consistency of revelation with such a topic advanced, may fairly become a theological question. It may be remarked, however, that if there be a plurality of worlds, that the God of the bible, not only created the one in which we live, but all others, wherever found in the voids of space. The fact of Deity being the author and creator of all that exist, is clearly taught in the bible. Hence, as their creator, there may be in that sacred book some allusion or reference. So it may not be inappropriate to make inquisition and search for such allusion. Says the writer of Hebrews, "God, who at sundry times, and in divers manners, spake in times past unto the fathers by the prophets, hath in these last days spoken unto us by his Son, whom he hath appointed heir of all things, by whom also he made the worlds." Again, in the same Epistle it is said, "Through faith we understand that the worlds were framed by the word of God, so that things which are seen were not made of things which do appear." The extent of creation is alluded to in the following declaration of holy writ, "For by him were all things created that are in heaven, and that are in earth, visible and invisible, whether they be thrones or dominions, or principalities or powers; all things were created by him, and for him; and he is before all things, and by him all things consist."

The scriptures, so far from teaching anything in

opposition to the theory of a plurality of worlds, really give strong confirmation in its favor. There is nothing in the sacred volume ever to have induced any one to have concluded that this globe on which we live was the only world in the infinite voids of space. Power and wisdom are conspicuously displayed in the Divine character. Those attributes are like the Being of whom they are component representatives—infinite in their nature. We cannot suppose that they would remain idle, while the voids of space would remain unpeopled. One globe like that on which we live, seems a small product of power and wisdom which are uncreated and eternal. The same energy speaking one world into existence, could easily create millions. This world does declare existence, and manifest the glory of the Creator. We cannot suppose that creating energy would thus display itself, and then retire into eternal inactivity. Such a procedure would be very different from the teachings of the sacred scriptures in relation to the character of God. Such a procedure would convey a very meagre idea of his greatness; it would not assort with his character as revealed in his written word. The universe, with its almost infinite plurality of worlds, as revealed in modern astronomy, is in all its vastness an imperfect representation of his existence, power, and glory. How contemptible, in this light, is the globe

on which we live, with a few shining points, or tapers scattered around in space. With human beings, there is always a proportion between any one and his actions; indeed, actions represent the man, they make the man. There must be a relation between the character and the actions of Deity. The Atonement, providence or the divine government, and creation, are so many representations of Deity. They are in one sense shadows of his glorious character; and as the shadow always bears a definite relation to the object, so these must to his real existence and nature. He reveals himself through his Son and the scriptures. From these sources we derive a knowledge of what He is. Answering to what is here revealed, must creation, providence, and redemption be. While they will conform to this, they do at the same time more fully reveal his character. This globe, nowise, with all its inhabitants, serves as an expression of the creating power of the great and adorable Creator; millions of worlds in multiplied systems, extending in magnitude far beyond human comprehension, would be a feeble agency for such an august purpose. The glorious character of the Messiah, the eternal Word, was the medium through which the Father manifested himself. The universe, as a physical word, need to be huge and extended, to manifest the natural attributes of the same august Being. The

sacred scriptures reveal the will and moral character of the Divine Being. Creation need be a vast and many-leaved volume to exhibit His natural character; even such a volume it is found to be, a volume that angels and superior intelligences may ever read, and yet never exhaust. A few of its leaves, the astronomer, with his far-reaching and space-penetrating telescope, may turn. But what intellect, and what telescopic power, shall ever peruse all of its sublime pages?

The globe on which we live is the abode of life, in countless forms. We may fairly infer, that the object of its creation, was to become a home for life. The production of life, was manifestly, a leading end for which material forms were created. In all living forms, from the microscopic animalculæ to man, the goodness of Deity is displayed. Every motion of the minute insect, the chirp of the grasshopper, the song of the bird, the bleating of the flock, and the sound of human speech divine, proclaim the goodness of Deity. In common, with all the Divine perfections, goodness is infinite. The goodness of God, surely would not limit itself to the globe on which we live, in giving existence to forms of life. While it would be compatible with the omnipotence of God, to create myriads of worlds, it would be in harmony with his goodness, to people them with forms of life. The infinite

power, wisdom, and goodness of God, justify us in expecting, and looking for a plurality of worlds, replenished with life, in the full fruition of existence. Do the discoveries of science meet this expectation? Are there facts and deductions to convince us of this? Science and revelation, on this, as on all other points of contact, will be found in full and divine harmony. The enlightened Christian should never suffer himself, under any circumstances, to doubt the harmony of scientific discoveries and the revealed truths of religion. Apparent, should never be regarded as real, discordancy. The apparent, and the real, are found to be widely different, in many cases. So much so, that we are, in practical life, disposed to question and doubt whatever may present itself before the mind. As in the moral world, the spirits are to be tried, so in the material, every phenomenon should be put to the test of an intellectual inquisition. In all apparent want of harmony between the bible and science, it should be taken for granted, that there does not exist any in reality. We have seen the shore present the appearance of being in motion, when we ourselves were moving in the vessel; and the trees and houses twirling around, when they were actually stationary, as we would pass by them in a car.

It is our part to harmonize these instances of seeming discrepancy. If it cost labor and study, we should not shrink from the toil. Great questions of this nature should be grappled, with all the energy of the intellect; and like that Patriarch, who wrestled all night, in a spirit of persevering piety, even till the break of day, before he accomplished his praiseworthy object—a single deed, conferring universal renown on him, through all time;—should we neither tire nor abate our energies, till the dawning light of concord and harmony shed a cheering influence over all the powers and faculties of the soul. And this compulsory process may be of a kindred nature with the general spirit of the gospel.

But what are some of the evidences of a scientific character, in favor of a plurality of worlds?

The telescope not only proves, but shows, a plurality of worlds. The sun is revealed, an enormous globe, opaque, surrounded by a luminous atmosphere, and in all respects, suited to be the abode of intelligent beings, as much so, and even to a far greater extent, than the Earth. The primary planets are all worlds like ours; some of them immensely larger. There are numerous satellites in the solar system; the moon furnishes a type of them, they are all worlds. On the surface of the moon is seen land and water, high mountains, and active vol-

canoes. The asteroids, between the orbits of Mars and Jupiter, are solid worlds, pursuing their way around the sun. The comets are numerous, and have an actual and cosmical existence. Engirdling two of the planets, broad and luminous zones are seen, presenting a magnificent appearance.

In addition to these, there are numerous other bodies of different families, or characters, which it will not be necessary, here, in detail, to enumerate; as they have been referred to in a former Discourse. These worlds have, all of them, an existence, as much so as the globe on which we dwell. They have been seen, and their position defined, as accurately as the mountains, or oceans, or rivers, or lakes, or islands, or continents, of our planet. So much for the discoveries of the telescope in the solar system.

The same instrument, in addition to those stars visible to the naked eye, opens up to the view, millions upon millions of others. These stars are all suns. The evidences in confirmation of this, have been, some of them, set forth in this course of Sermons. If this be true—that they are suns—and if there is any meaning in analogies and relations, they are each engirdled by a cortege of worlds. What countless myriads of worlds people the deep regions of space!

Besides the stars, and located beyond them, are seen great astral systems; these systems, amount-

ing to many thousands in number, contain innumerable stars, having a nature similar to those around us. Still beyond those systems, seen at the utmost verge of telescopic visibility, there may roll innumerable worlds, proclaiming the Hand that made them to be divine. Every increase of telescopic power, heretofore, has brought into the range of vision additional portions of creation. We have no reason to believe that all the depths and heights of the universe have yet been sounded and explored, by the range of telescopic vision. Art and science will, no doubt, yet enlarge the vision of the telescopic tube, and every successive enlargement will, doubtless, bring into view new provinces and precincts of the physical dominion of the Divine empire.

But the question arises, full of interest to every intelligent mind, are all the countless worlds which have emanated from the creative hand of the Omnipotent One, inhabited? Or, is the planet on which we live, the only one on which life is found? It would seem strange that our globe is inhabited, and that all others are unoccupied. It is small and insignificant, bearing not so great a proportion to the whole created universe, as a grain of sand does to its entire size, or as a leaf to a vast forest, or as a drop to the ocean. If the earth were precipitated, with its mountains, seas, empires, and

cities, on the surface of some of the worlds in the voids of space, it would there present no more than a protuberance in appearance, or a mountain of some eminence. Why should this planet, small and insignificant as it is, be selected as the abode of life, while so many worlds far greater, having all the advantages of day and night, a succession of seasons, clouds, atmosphere, rain, and dew, remain tenantless and desert; no sound of life, or voice of devotion to break the eternal silence as deep, and still as the grave? What is there about this globe, that should make it such an object of preference? To suppose all other worlds uninhabited, while it is filled with denizens, is not only contrary to reason and high analogies, but bears on its front an appearance of absurdity, which must be manifest to a superficial observation. That which is near fills our vision, and absorbs our attention. A copper cent placed immediately before the eye will obscure the lofty chain, or the high tower, or the broad and beautiful bay in the distance. Too many, while living on this small planet, occupied with its petty and evanescent affairs, lose sight of the magnificent Jupiter, of Saturn with its brilliant and gay appendages, or Uranus, or Neptune, or of the enormous and splendidly invested orb of the sun. As to the remote star, and the distant Nebulæ, a huge system of

systems of worlds, they concern not themselves about them. Their minds, in respect to these, are not unlike the untutored mind of Pope's poor Indian, in the "Essay on Man :"

"His soul, proud science never taught to stray
Far as the solar walk or milky way."

In parliamentary proceedings, it is the custom, sometimes to divide complicated questions. The advantages of such a course, are often very great. To argue the question of the habitability of all the worlds of the created universe, seems too formidable. There is a sort of stunning effect produced on the mind at the bare mention of such a topic, from the fact of the vast multitude and number of those worlds. The mind is in danger of becoming confused and amazed amid the interminable wilderness of them, moving in all directions in space, sole, or in pairs, or in groups, or in systems. Let us direct our investigations, to avoid confusion and for the sake of definiteness of aim, to the orbs of the solar system. If it be made manifest that they are inhabited, then without begging the question, without dogmatism, and not violating any of the rules of logic, we may affirm that all worlds are filled with living beings.

What degree of evidence, in relation to this question, will satisfy the mind of the hearer this even-

ing? Men will not take all things on equal degrees of evidence; some things are received on testimony as light as air, or as flimsy as the spider's web; others will not be received on confirmation as strong as holy writ, or on the evidences of the senses. It might be a subject of curious investigation, for each one of us to scan and weigh the amount of evidence on which most of our belief rests. Many propositions we receive as true, on exceedingly slender testimony. The evidence in favor of the planets of the solar system being inhabited, is just as strong, and as reliable, as that on which property is transferred in courts of justice, or on which criminals are executed, or consigned to penitentiaries. An impartial and thorough examination of the subject, will make this manifest. Let us then, with a love of truth, minds full of candor, and with a noble zeal for science, proceed to this investigation. And like that dove of Noah, that went forth from the ark over the world-wide expanse of waters, and returned with an olive-branch in its mouth—the sure pledge and evidence of dry land; may our investigations, penetrating the ocean-like expanse of space, find not only great worlds, far greater than ours, with all the conditions and circumstances necessary to the enjoyment of life, but they will return with substantial, and even “olive-branch” evidences, that there are beings

on them, partaking of all the blessings of a life, as much superior to ours, as the size of their worlds exceed it. And this experimental tour, this world-exploration, may convince us that intelligent life, apart from this earth, is to be found in the great empire of God. That an innumerable brotherhood—millions of kindred and german races—scattered tribes of the same parent—may be discovered to be denizens of different worlds. Such an enlargement of views, may serve to purge the mind from neighborhood selfishness, and clanish feelings; it may be one step toward the God-like in benevolence. It may serve to conduct the mind toward an intellectual eminence, from which the whole created universe may be regarded as a great house, all created virtuous intelligences, as a household or family, and the great God, as the great Parent of all. Such views and contemplations cannot fail to evolve from every heart of piety, filial feelings, love, and sweet gratitude.

We find in the solar system different classes of bodies, intended, in respect to the system, for different purposes. Of these, there is the sun the central body, intended to diffuse light, heat, and gravity. Viewed in relation to the universe, this constitutes a great class of bodies. Next, are the primary planets, revolving about the central luminary. Then, the secondary planets or satellites,

revolving around the primaries, and subserving useful purposes of a very important character. Then, there is the comet, enigmatical, and perplexing as to its end and object, forming a very numerous class. There are other minor bodies, constituting separate classes, which I will not here notice. The primary planets then, constitute a class, having a strong family likeness. Now, fortunately, we have evidence that on one of this family of worlds, there are inhabitants. Why should we not look for inhabitants on all the other members of this class or family? Are there any reasons why we should not? All of the primary planets turn on their axes, hence, there is day and night on them, which alterations sustain a relation to life. They all revolve around the sun, with their axes inclined to the planes of their orbits; hence, they have their annual periods, or years, and a succession of seasons — spring, summer, autumn, and winter. Why a summer there, if not to ripen fruits? And why fruits, if no one to eat them? An atmosphere has been discovered to envelope some of the planets. If they have atmospheres, surely there are inhabitants there to breathe it, and enjoy life in it. Clouds float in our atmosphere — no doubt they do in the atmosphere of the planets; there are showers of rains there, and genial dews, and twilight scenes, and the beauties of the rain-

bow. The atmosphere is the medium through which sounds are conveyed. Why may not the strains of music, the sound of speech, the song of devotion, and the voice of prayer be heard there? On this planet, all life, animal and vegetable, has a direct relation to the motion of the earth on its axis and in its orbit; so much so, that we may state, as a fair deduction, that the earth moves in its orbit and turns on its axis to support life. The motion of all the planets is intended, evidently, to accomplish the same ultimate end. More might be said in relation to this subject—this is sufficient here. If the planets are inhabited, why not all worlds, wherever found? The sun is but a planet to some great central orb, and the primary planets are but, in relation to this, its satellites. If the sun be a planet, why may it not be inhabited? If the earth be a satellite to the sun, why may not the moon, or all the moons of the solar system, be inhabited?

Then, what a vast number of worlds people the realms of space! What countless myriads of inhabitants may sojourn on all these worlds! This is the head and front of a most formidable objection, which in the judgment of many, opposes the doctrine, as related in the scriptures, of the redemption of the human family, the inhabitants of a small and insignificant planet, by the Son of God. Our world, constituting but an infinitesimal atom, com-

pared with all the worlds revealed in astronomical science, seems too insignificant an object, according to the objection in question, to cause the Son of God to leave heaven, to disrobe himself of his eternal honors, and to come to it, and die a shameful death for its inhabitants. The introduction of sin, and rebellion, in so remote and obscure a precinct of the divine empire, was not an object of sufficient consequence to elicit such sympathy and condescension from so august a Source. This objection, perhaps, may be presented with greater force in the following manner. The Chinese empire, in a treaty, recently ceded to the crown of Great Britain, the small island in the Chinese sea, of Hongkong. It could not be expected that the Sovereign of the British empire would give her eldest son, the Prince of Wales, a youth now of tender years, to go, resigning all claim and right to the future possession of the largest empire on the globe, to that insignificant island, and there, after residing in poverty, toil, and disgrace for some thirty or thirty-five years, trying to elevate, and civilize its degraded inhabitants, ultimately to give his life to accomplish such an end.

Let us now proceed to meet this objection.

It may be replied, that those urging the objection, as well as all other human beings, are totally

ignorant of the moral condition of all that vast number of worlds revealed in astronomical science. Who would say that moral science has not found its way into any other world beside the globe on which we live? What authority would any one have for making such an assertion? There is nothing in the sacred scriptures to justify it. Astronomical science reveals nothing that would lead to such a conclusion. Why should it be regarded, then, as a fixed fact, that our world is the only one in which sin has made its frightful appearance. The custom of taking it for granted that some things are impossible which are not, or are true or false which are not, constitutes the greatest bar to the progress of human discovery and knowledge. The scriptures actually teach us that moral evil is found elsewhere in the universe aside from the earth. Heaven and Hell are worlds not revealed in astronomical science. They lie beyond the utmost reach of its farthest vision. They are, however, a part of the universe. The one probably the glorious center and ornament of it; the other a gloomy, a dark, a penal appendage. They are not the only portions of the universe which lie beyond the extreme verge of astronomical visibility.

But in Heaven, moral evil reared its dragon crest in the fearful rebellion of Lucifer and his apostate crew. To the gloomy shades of Hell, this

whole rebellious host, composed of numbers compared to the third part of the stars, was in dread punishment consigned. There, all the disobedient rejectors of the gospel, in their unbelief, corruption, and sin, are driven, by a holy and righteous Judge. There, not only is sore and dread punishment inflicted on moral evil, but unbelieving, unrepentant, unregenerate souls, suffering the penalties of a violated law, break forth in feeling, word, and thought, ever and anon, into fresh commissions of sin. So then in Heaven, in Hell, and on earth—three worlds, moral evil has been committed. All this the bible reveals. But no farther does it go. The silence of that blessed book does not preclude the possibility of sin having visited some, or even many, of the worlds revealed in astronomical science, carrying, as Satan did to Paradise, ruin and death. It is not affirmed here that this is true. On the other hand, there are no facts from any source to say that it is false. Our total ignorance, then, of the moral condition of other worlds, removes much of the force of that objection, drawn from the discoveries of modern astronomy, and urged against the doctrine of the Atonement by the Son of God. If, then, instead of one world having sinned, many have been guilty of so doing, the infinite compassion and condescension of the Son of God, manifested to our world, may be but the part of a great act of benev-

olence, put forth to embrace not only ninety and nine lost worlds, but even a far more indefinite number than that.

But farther, in respect to this subject, we are not only ignorant of the history of other worlds, so far as the introduction of moral evil into them is concerned, but also, whether or not remedial efforts of a livine character may have been put forth upon them, in astonishing displays of love and compassion. There was, it is true, no Atonement provided for fallen angels. This, however, does not conclude against the possibility of one having been made in some of the worlds brought to light in astronomy. There may have been something peculiar in the nature of the sin of angels, or their character, or the circumstances, or the time of their transgression, so much so as to preclude the possibility of any scheme of redemption being provided for them.

Many good and pious people believe, that there are some passages of scripture which make an incidental allusion to an Atonement having been made in different worlds beside ours. The occasion and the subject will justify a reference to some of these texts of holy writ. It will not be the object to force or torture any unnatural signification from them, but to present them for the candid consideration of the hearers, leaving each one to put his own

construction on them, and to make his own deductions and applications. Conspicuous among these, is our text, in which it is said, that Christ reconciled all things unto himself, "whether they be things in earth, or things in heaven." So that the reconciliation of Christ extended, not only to earth, but to "things in heaven." The character of the reconciliation in heaven is the question. Does it or not, refer to Christ making an Atonement in other worlds? If this be not the meaning, what is it?

Says John, "And there are also many other things which Jesus did, the which, if they should be written every one, I suppose that even the world itself could not contain the books that should be written. Amen." It has been contended, that either John used a most extravagant hyperbole, or else the multiplex acts of Jesus could not have been performed on this planet, but must have been enacted somewhere else. Whether that were in creating and providential acts in heaven, or in some other form in remote worlds, is the question for solution.

In Romans it is written, "For we know that the whole creation groaneth and travaileth in pain together until now, and not only they, but ourselves also, which have the first fruits of the Spirit." The application, or limitation of the phrase "whole creation," in this passage, will determine its meaning.

Does that phrase refer to a part, or to the whole of the created universe?

Says our Saviour, in John's gospel, "And other sheep I have, which are not of this fold; them also I must bring, and they shall hear my voice; and there shall be one fold, and one Shepherd." Is allusion here made to the Gentiles, or to lost sheep in other worlds? Christ did create, and does govern, according to the teaching of the scriptures, all worlds. Why should it be thought a thing incredible, that the same Being, in the exercise of infinite power and compassion, would go on a mission of salvation to some, or even many, of those worlds? Many eminent divines have held to the doctrine, that Christ, during the time intervening between his death on the cross and the resurrection on the third morning, went and preached to lost spirits in hell. It would be far less inconsistent with reason and the general scope of scriptural meaning, to say, that during that period, he went forth to other planets, and by due course, wrought out a glorious redemption for their fallen inhabitants.

On the hypothesis that moral evil has been introduced into different worlds, and that salvation has been provided for their inhabitants, the question might arise in some minds, how such objects would be accomplished. It may be answered to this question, that Christ, as to his divine nature, is

omnipresent, and that he could readily become incarnate in all the worlds where an Atonement would be necessary. And thus, at the same time the imposing and august moral phenomenon might be presented, of the Son of God being incarnate, obeying the divine law, and suffering an ignominious death of expiation, in numerous worlds. A simultaneous crucifixion scene, in many localities, would give to all heaven, and all superior intelligences, an exalted idea of the Atonement. Such a scene would have a wonderful tendency, wherever and by whatever intelligences seen and known, to produce a profound impression as to the holiness, and dignity, of the great moral government of God. Or, we might suppose that the Son of God would successively, as in search of the lost sheep, go, led by infinite love and compassion, to each erring world, which, prodigal-like, had strayed from the presence and happiness of God the Father.

But, to meet conjecture with conjecture, and confront supposition with supposition, let us take another view of this question. There are innumerable worlds in the voids of space; ours is trifling and insignificant compared with many of them. Let us suppose that the inhabitants of many of these worlds have sinned, and that Christ died only on earth: might we not suppose that as all worlds are in one government, and all the offenses of all

their erring inhabitants would relate to one law and one great sovereign, that Christ, by an infinite stoop of condescension in coming to our world, which we will suppose the most trifling and insignificant of all that have fallen, and by becoming incarnate and dying in it, showing the greatest example of humility which could be done in the case, may, by such an ignominious death, in so small and trifling a world, have made an Atonement that would be accepted on the part of the great God, as full and ample for the sins of all. To them, all this could have been conveyed and preached, a glorious gospel of deliverance, carrying life and immortality with it. But let us view this question on the supposition that moral evil has not found its way into any world but ours, and that Christ has died in none other.

The Atonement was made, according to the teaching of the sacred scriptures, on governmental principles. It has a double reference—the one to man, the other to the moral government of God. It glorifies God, magnifies the moral law, and sustains the dignity of the divine government, as well as extends deliverance to the human family. If we have no other idea of the Atonement than delivering man from ruin, we degrade it. Before the fall of man a great contest was going on between sin and holiness, between Jehovah and Lu-

cifer and his rebellious hosts ; it was a great contest for supremacy and dominion in the moral universe. In the progress of this struggle, man became involved—having been seduced and drawn from his allegiance to the Creator by the Arch-foe. There is a contest for the supremacy over man and his world. The dignity and honor of the divine government is concerned. Hence it is reasonable that the Son of God would make unusual efforts to rescue it. When the contest ran high for the empire of the world, between Rome and Carthage, their great captains met and decided the contest by force of arms, not in either of those great cities, but in the obscure town of Zama. When the contest between despotism and republicanism in the Roman world was to be decided, not in Rome, but at Philippi, the forces of the former met, headed by Mark Antony and Augustus, those of the latter, led on by Brutus and Cassius, where a decisive battle was fought, in which the republic was overthrown. During the present century, when Europe allied was contending for existence with Napoleon, not Paris, nor any of the great capitals of the allied powers, but Waterloo, a small and inconsiderable village, was the place where the mighty struggle was finally decided. Then, in a great contest for dominion between Heaven and Hell, between the Son of God and the Powers of Dark-

ness headed by Lucifer, this world was the place where the great moral battle was fought. To achieve this great victory, Christ came from heaven to this world, took upon himself human nature, led a life of suffering, and died a death of ignominy on the cross. If there be countless worlds inhabited, if they have all remained unfallen, and if ours be the most insignificant of all those that are peopled, still there were reasons of infinite importance for Christ to have died in it as he did. Great principles were at stake. Zama, and Philippi, and Waterloo, small as they were, did not diminish the importance of the great battles fought at them.

The Atonement and redemption of the human family, viewed in this light, to the divine government assume a most important aspect. The redeemed, in the full significance of the term, may be called the sons of God.

Thus we have seen, in this discourse, the objections drawn from modern astronomy and urged against the doctrine of the redemption of the human family by the Son of God. Viewed in any light, these objections have no force. On the other had, the Atonement considered in reference to the teachings of astronomy, assumes the greater importance, the farther extent of its signification and purposes, and the more moral grandeur and sublimity being conspicuous. Viewed through the

medium of the created universe, in connection with the light of revelation, the profundities and extent of its beauties break upon our view, even as the telescope opens up great worlds and astral systems observed beyond the reach of unassisted vision.

The present discourse closes our series of Astronomical Sermons. With their defects or merits they have in succession been presented to you, after a lapse of many weeks. I could have heartily wished them worthier of your protracted and close attention. The mode of treating the subject may have been faulty; the subject itself, however, is grand, sublime, and God-like. I hope that your own thoughts and contemplations elicited on the occasion will make you wiser, better, and happier. And as astronomical science presents us with a view of all the created things in active, restless, and unceasing motion, teaching us an important lesson as to the instability and evanescent nature of whatever pertains to this life, it is to be devoutly wished that each one will be guided by the associated and divinely given light of revelation, look in confiding piety across the flickering realms of change and death to that eternal world of blessedness, the home of the redeemed and the abode of God, where endless life, undimmed glories, and unfading joys are ever found.

A D D E N D A.

A

In the second series of Sermons in this volume, the topics discussed are connected with revealed religion. There subsists a most important connection between the teachings of the sacred scriptures and scientific discoveries. Much feeling has been elicited as to the nature of this relationship. Unnecessary fears have existed in the minds of many good and pious people as to the harmony between the word and works of the Creator. By way of confirmation of the positions advanced in these Discourses, it may be altogether appropriate to extract from some of the distinguished lights of Christianity their views in relation to Science and Revelation, and here append them. All are more or less influenced by name and authority—many are governed to a far greater extent by them, in the formation of their opinions, than by fact and argument. The following will, doubtless, be in accordance with the views of every mind : “ No reasonable man can doubt that all the phenomena of the natural world derive their origin from God ; and no one who believes the bible to be the word of God, has cause to fear any discrepancy between this, his word, and the results of any discoveries respecting the nature of his works ; but the early and deliberative stages of scientific discovery are always those of per-

plexity and alarm, and during these stages the human mind is naturally circumspect and slow to admit new conclusions in any department of knowledge. The prejudiced persecutors of Galileo apprehended danger to religion from the discoveries of a science in which a Kepler and a Newton found demonstrations of the most sublime and glorious attributes of the Creator.*

B

Much has been said in the religious world as to the provinces of reason and revelation. Allusions have been made in these Discourses to the use and abuse of both. The following extract contains sentiments worthy of careful consideration: "The Disappointment which many minds experience at finding in the phenomena of the natural world no indications of the will of God, respecting the moral conduct or future prospects of the human race, arises principally from an indistinct and mistaken view of the respective provinces of reason and revelation. By the exercise of our reason, we discover abundant evidences of the existence, and of some of the attributes, of a supreme Creator, and apprehend the operations of many of the second causes, or instrumental agents, by which he upholds the mechanism of the material world; but here its province ends. Respecting the subjects on which, above all others, it concerns mankind to be well informed, namely: the will of God in his moral government and the future prospects of the human race, reason only assures us of the absolute need in which we stand of a revelation. Many of the greatest proficient in philosophy have felt and expressed these distinctions. The considerations of God's providence (says Boyd) in the con-

* *Bridgewater Treatises*, by Rev. Wm. Buckland, D. D., vol. 1, p. 19.

duct of things corporeal, may prove to a well-disposed contemplator, a bridge, whereon he may pass from natural to revealed religion."*

C

The theme of one of the Discourses in the second series of this volume, is "the Locality of Hell, considered in relation to Astronomy." To those who may question the propriety of the introduction of such topics into the authorized teachings of Christianity, it may be stated, that Dr. Chalmers, one of the greatest lights of Presbyterianism, makes the following the theme of one of his *Astronomical Discourses*: "Contest for ascendancy over man among the higher intelligences." From this discourse I will make an extract which will show his mode of treating such high themes, and the authority which he considers there is in the bible for so doing. "The bible is always most full and most explanatory on those points of revelation in which men are personally interested. But it does at times offer a dim transparency, through which may be caught a partial view of such designs and such enterprises as are now afloat among the upper orders of intelligence. It tells us of a mighty struggle that is now going on for a moral ascendancy over the hearts of this world's population. It tells us that our race were seduced from their allegiance to God, by the plotting sagacity of one who stands pre-eminent against Him, among the hosts of a very wide and extended rebellion. It tells us of the Captain of salvation, who undertook to spoil him of his triumph; and throughout the whole of that magnificent train of prophecy which points to Him, does it describe the work he had to do, as a conflict, in which strength was to be put forth, and painful suffering to be endured, and fury to be poured upon ene-

* *Bridgewater Treatises*, by Rev. Wm. Buckland, D. D., vol. 1, p. 422.

miss, and principalities to be dethroned, and all these toils, and dangers, and difficulties to be borne, which strewed the path of perseverance that was to carry Him to victory.”*

D

The design of one of the Discourses in this second series is to show that Heaven has a location somewhere in the created universe. Dr. Chalmers clearly regards Heaven as having a definite locality, in his discourse (astronomical) on the “Sympathy felt for man in distant places of creation.” The following extract will evince this: “Now conceive, as we are warranted to do by the parables of this chapter, the principle of all these earthly exhibitions to be in full operation around the throne of God. Conceive the universe to be one secure and rejoicing family, and that this alienated world is the only strayed or captive member belonging to it, and we shall cease to wonder, that, from the first period of the captivity of our species down to the consummation of their history in time, there should be such a movement in heaven; or that angels should so often have sped their commissioned way on the errand of our recovery; or that the Son of God should have bowed himself down to the burden of our mysterious atonement; or that the Spirit of God should now, by the busy variety of his all-powerful influences, be carrying forward that dispensation of grace which is to make us meet for re-admittance into the mansions of the celestial. Only think of love as the reigning principle there; of love, as sending forth its energies and aspirations to the quarter where its object is most in danger of being forever lost to it; of love, as called forth by this single circumstance to its uttermost exertion,

* Discourses on the Christian Revelation viewed in connection with Modern Astronomy; by Thomas Chalmers, D. D. Discourse vi., p. 142.

and the most exquisite feeling of its tenderness ; and then shall we come to a distinct and familiar explanation of this whole mystery ; nor shall we resist, by our incredulity, the gospel message any longer, though it tells us that throughout this world's history—long in our eyes, but only a little month in the high periods of immortality—so much of the vigilance, and so much of the earnestness of heaven, should have been expended on the recovery of its guilty population.”*

E

The harmony of science and religion has been a subject which has excited much interest in the religious world. Some of the advantages resulting from their connection are alluded to in the introductory essay to the second part of this volume. I will here transcribe an extract from one of the most distinguished divines of modern times, in relation to this subject : “ If we survey the genius of Christianity, we shall find it to be just the reverse. It was ushered into the world with the injunction, Go, teach all nations ; and every step of its progress is to be ascribed to instruction. With a condescension worthy of its Author, it offers information to the meanest and most illiterate ; but extreme ignorance is not a state of mind favorable to it. The first churches were planted in cities (and those the most celebrated and enlightened), drawn neither from the very highest nor the very lowest classes ; the former too often the victims of luxury and pride, the latter sunk in extreme stupidity ; but from the middle orders, where the largest portion of virtue and good sense has usually resided. In remote villages, its progress was extremely slow, owing unques-

* Discourses on the Christian Revelation viewed in connection with Modern Astronomy ; by Thomas Chalmers, D. D., LL. D. ; p. 129.

tionably to that want of mental cultivation which rendered them the last retreats of superstition ; inasmuch that in the fifth century the abettors of the ancient idolatry began to be denominated Pagani, which properly denotes the inhabitants of the country, in distinction from those who reside in towns. At the Reformation, the progress of the reformed faith went hand in hand with the advancement of letters ; it had everywhere the same friends and the same enemies, and, next to its agreement with the holy scriptures, its success is chiefly to be ascribed, under God, to the art of printing, the revival of classical learning, and the illustrious patrons of science attached to its cause. In the representation of that glorious period usually styled the Millennium, when religion shall universally prevail, it is mentioned as a conspicuous feature, that men shall run to and fro, and knowledge shall be increased. That period will not be distinguished from the preceding by men's minds being more torpid and inactive, but rather by the consecration of every power to the service of the Most High. It will be a period of remarkable illumination, during which the light of the moon shall be as the light of the sun, and the light of the sun as that of seven days. Every useful talent will be cultivated, every art subservient to the interests of man be improved and perfected ; learning will amass her stores, and genius emit her splendors ; but the former will be displayed without ostentation, and the latter shine with the softened effulgence of humanity and love."

I'

Scientific discoveries are very important agencies in the interpretation of the Sacred Scriptures. Allusion has been made, to this fact, in more than one instance in the Discourses of this vol-

* The works of Rev. Robert Hall, A. M., in three volumes, Vol. 1, p. 120.

ume. The following quotation will acquaint us with the sentiments of a very distinguished American divine and scholar: "The meaning of the Scriptures is to be determined in the same way as the meaning of any other book written in similar circumstances. Its inspiration puts no bar in the way of the most rigid application of the rules of criticism, nor renders it unnecessary to seek for light in whatever quarter it can be obtained. The rules of grammatical and rhetorical construction, the study of contemporary writers, a knowledge of the history, customs, opinions, and prejudices of the times, and other circumstances that need not be mentioned, become important means of attaining the true *usus loquendi*, or principle of interpretation. But I pass by all these on the present occasion, because no one doubts their importance in rightly understanding the bible. I maintain that scientific discoveries furnish us with another means of its correct interpretation, where it describes natural phenomena. And in this position we shall not probably find an entire unanimity of opinion. It will not be denied that modern science has corrected the opinions of men in regard to very many natural phenomena. The same term that conveyed one idea to an ancient reader, or hearer, of the bible, often conveys an opposite meaning to a modern ear. And yet that term may be very proper to use in modern times, if understood to express only apparent, and not real truth. The Jew understood it to mean the latter; and it would seem as if we might employ modern scientific discovery to enable us to decide in which sense the bible did use the term. For if we admit the Jew to have been correct in his interpretation, then we bring revelation into direct collision with the demonstrations of physics."*

* The Religion of Geology and its connected Sciences. By Edward Hitchcock, D. D., L. L. D., p. 5, 6.

G

The following beautiful extract inculcates the harmony of faith and science. "Yes, certainly it is so. Faith so teaches, inspiring us with this sentiment, vague, still yet profound. Science so teaches, by a patient and long-continued study, reserving this sublime view as the sweetest reward for our labor. Faith, enlightened and expounded by science,—the union of faith and science,—is living, harmonious; knowledge is perfected faith, for it has become vision."^a

H

It may not be inappropriate to transcribe some passages of Scripture bearing a relation to the aim of this second series of Discourses.

"For the priest's lips should keep knowledge ; and they should seek the law at his mouth ; for he is the messenger of the Lord of Hosts."[†]

"For now we see through a glass darkly ; but then face to face ; now I know in part ; but then shall I know even as also I am known."[‡]

"Happy is the man that findeth wisdom, and he that getteth understanding, for the merchandise of it is better than the merchandise of silver, and the gain thereof than fine gold. She is more precious than rubies ; and all the things thou canst desire are not to be compared unto her. Length of days are in her right hand ; and in her left hand riches and honor. Her ways are ways of pleasantness, and all her paths are peace. She is a tree of life

^a The Earth and Man ; Lectures on Comparative Physical Geography, in its relation to the History of Mankind. By Arnold Guyot, p. 309.

[†] Malachi ii : 7.

[‡] 1 Cor. xiii : 12.

to them that lay hold upon her; and happy is every one that retaineth her."*

"I will fetch my knowledge from afar, and will ascribe righteousness to my Maker. For truly my words shall not be false; he that is perfect in knowledge is with thee."†

"My son, if thou wilt receive my words, and hide my commandments with thee; so that thou incline thine ear unto wisdom, and apply thine heart to understanding; yea, if thou cryest after knowledge, and liftest up thy voice for understanding; if thou seekest her as silver, and searchest for her as for hid treasures; then shalt thou understand the fear of the Lord, and find the knowledge of God. For the Lord giveth wisdom; out of his mouth cometh knowledge and understanding."‡

"Through wisdom an house is builded; and by understanding it is established: and by knowledge shall the chambers be filled with all precious and pleasant riches. A wise man is strong; yea, a man of knowledge increaseth strength. For by wise counsel thou shalt make thy war; and in multitude of counselors there is safety."§

"And beside this, giving all diligence, add to your faith virtue; and to virtue *knowledge*; and to knowledge, temperance; and to temperance, patience; and to patience godliness; and to godliness, brotherly kindness; and to brotherly kindness, charity."¶

"Every good gift and every perfect gift is from above, and cometh down from the father of lights, with whom is no variableness, neither shadow of turning."||

"Till I come, give attendance to reading, to exhortation, to doctrine. . . Meditate upon these things; give thyself wholly to them; that thy profiting may appear to all."|||

* Prov. iii: 13—18.

† Job. xxxvi: 3, 4.

‡ Prov. ii: 1—6.

§ Prov. xxiv: 3—6.

¶ 2 Pet. i: 5—7.

|| James i: 17.

||| 1 Tim. iv: 13—15.

I

The agreement of revealed religion and true science, so frequently insisted upon in the Discourses of this volume, is thus testified to by a distinguished divine of England, but recently deceased: "The study of revealed religion, thus pursued, cannot but be in perfect harmony with all true science. The works and the word of God are streams from the same source, and though they flow in different directions, they necessarily partake of the same qualities of truth, wisdom, and goodness."*

J

I will here take the liberty of extracting a letter from the "Memphis Daily Appeal," of May 12th, 1852, which, though bearing a fictitious signature, is understood to have been written by one of the most distinguished journalists in the south-west. The object is not to present the complimentary sentiments to the reader; if such were the object, quotations from various periodicals could be obtained of a highly laudatory character; extracts of this nature could be made from some of the papers of Philadelphia, where these discourses were first delivered, as well as of other places. The object is to call attention to the views of one who is acquainted with the principles of science and the teachings of religion in relation to the Discourse on the Locality of Hell, viewed in relation to Astronomy:—

"For the Appeal.

"DR. H. S. PORTER—ASTRONOMICAL SERMONS.

"OXFORD, MESS., April 29, 1852.

"MESSRS. EDITORS:—Our community has been recently favored with a visit from the eloquent and erudite pastor of the Presbyterian

* On the Relation between the Holy Scriptures and some parts of Geological Science; by John Fye Smith, D. D., F. G. S., p. 33.

Church, at Memphis, and we have had the high gratification of listening to the series of Astronomical Sermons, which attracted so much attention in Philadelphia, and also in your city, during the past winter. The fame of Dr. Porter had preceded him, and expectation ran high ; yet, I assure you, it was fully met, and more than met, by the learned and gifted divine. He introduced the series by proving the *existence* of Deity by facts drawn from astronomy, and then proceeded to establish the attributes of God by the use of received truths found in his favorite and sublime science. By request, he also gave us his celebrated sermons on the Locality of Heaven and Hell. As the latter (more particularly) seems to have been misapprehended, here and elsewhere, I propose to give the substance of it, and shall ask you to give it publicity. The publication will vindicate alike science and Christianity.

“ But I must not neglect to notice his lecture on Reading, with which we were also favored. It seems to be intended more for the instruction and direction of the youthful student than the ripper and advanced scholar ; yet the latter might well reap advantage from the extensive field of research which it opens up. This lecture, in the estimation of your correspondent, fell little, if any, behind his other brilliant efforts. Indeed, by many competent critics it was regarded as the very best of the series. It was certainly replete with sound admonition, independence of thought, liberality of opinion, and beauty of diction, But I must no longer detain the reader from the sermon on the Locality of Hell. I can only give some of the leading features of it, and would suggest that it should be written out.

“ On Sabbath evening, 28th inst., Dr. Porter gave us a highly interesting discourse on the Locality of Hell, considered in relation to astronomical science. After suitable preliminary remarks, he briefly enumerated the more popular theories of ancient and mod-

ern times, touching this subject; stating, that the commonly received opinion among Jews and Christians was, that Hell is in the Earth. This opinion, he supposed originated from a misapprehension of certain passages of scripture, in which such terms as '*down*,' '*beneath*,' &c., are used in connection with Hell, as, '*lowest hell*,' '*down to hell*,' '*deeper than hell*,' '*depths of hell*.' Such terms he believed to be only relative, and not absolute in their meaning, and as used in the above and similar connections, are to be taken not as indicative of the *locality* of Hell, but suggestive of the debased condition of the inmates of Hell, as those who debase themselves even to hell—see Ezekiel. The case of the rich man (Luke xvi), he said, gives no clue to the location of Hell (in the earth). His body is in the grave, and not in the local hell into which soul and body will be cast after the resurrection; and his colloquy with Abraham, which was probably miraculous, is no evidence of the close proximity of a local Hell and local Heaven.

"Dr. Porter further stated, that the universe of matter and mind was created by one God, and constituted but one mighty dominion; that every species of creation was subject to appropriate laws, emanating from the all-wise and powerful Creator; that the infraction of these laws involved ruinous consequences; that the violation of moral laws originated the utility of Hell; and that the bible taught the existence of one Heaven and one Hell for the universe. As there is but one God, the common governor and creator of all worlds, so there is a common Heaven for the virtuous and good of all worlds, and a common Hell for the wicked of all worlds. That sin did not originate on earth, but in some other world—not by the agency of *man*, but by the agency of a different order of beings; that Hell was not '*prepared*' specially for man, but *for the devil* and his *angels*, not on earth, but elsewhere, and prior to the existence of the earth; and that, of course, the locality of Hell must

not be sought upon our globe. He did not dogmatize, but modestly gave it as his decided and well-matured opinion, that Hell is located in the voids of utter darkness, far beyond the limits and influence of physical creation. Astronomers generally believe that space is infinite, and that far out beyond the utmost limit of creation, utter darkness prevails, where not a star—not a ray of light—not a vestige of physical creation is visible. In this utter darkness the learned divine locates Hell. He supported this opinion by a number of considerations drawn from astronomical science, and also by an appeal to the bible:—‘The wicked will be cast into *outer darkness*.’—Mat. xxii: 13, 25, 30.

This is represented as taking place at the Judgment, when the wicked, soul and body, will enter their final prison house. It is also said (2 Thes. i: 9) that the wicked, in the Judgment, shall be driven away from the presence of God, and from the glory of his power. Dr. Porter insisted that the wicked in this outer void are literally in darkness—in outer darkness—the blackness of darkness—literally driven from the presence of God and from the glory of his power, far from the sublime beauties and glories of creation, and the sublimer glories of Heaven, with no indication of God’s presence except their own consciousness of being and wretchedness. This theory, it may be truly said, is both specious and imposing, and renders the local Hell of the bible consonant with received truths of physical science.

“Dr. Porter’s manner during the delivery of this original and deeply interesting Discourse was solemn and impressive. The audience gave him their whole attention, and when his words died away upon the greedy ear, they seemed to breathe freer and easier, as if suddenly released from a delicious thralldom which science and eloquence alone could impose. Such sermons are eminently calculated, while they “stir the divinity within us,” to

instruct, to elevate, and improve ; and it must be matter of regret that the pulpit is not more frequently adorned and dignified by them."

11

